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VILLAGE POTTERY SCHEMES:

A HAND-BOOK

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MODEL CENTRE FOR VILLAGE INDUSTRIES, T. KALLUPATTI, MADURAI DT.

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KHADI AND VILLAGE INDUSTRIES COMMISSION

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PREFACE

The red earth pottery is losing fast and I do not know whether the utility articles used by the villagers in their homes can survive long unless there is change in the method of the collection and using of clay and unless there is scientific burning in an improved kiln. The potter tries, within his means, to find out the best clay and he mixes also various kinds of clay. His meagre resources do not allow him to go further. The clay may have to be transported from one place to the other. If necessary I wish that the conference should discuss this threadbare and do the needful in this matter.

Brick making, tiles making and pipes making etc., which have to be cooperatively done by the potters are likely to give them alternative employment. Improved techniques for lifting and pressing will have to be used if the articles are to be strong and durable. How far this will come within the scope of the pottery industry, I do not know ; but I request that the conference may carefully study

this point.

Pottery is not likely to survive unless all the potters in an area combine together into cooperative societies and adopt new techniques collectively. This point also should be carefully discussed and studied by the conference.

A. W. Sahasrabuddhe

(from his message)

INTRODUCTION

The third All India Pottery Conference was held at Mugkalyan on March 16, 17 and 18, 1958. Mugkalyan is a small village in West Bengal. The nearest railway station is Bagnan on the Howrah Karaghpur line. The Gram Seva Sangh was in charge of the arrangement. The conference was attended by about 140 delegates from all over India, besides representatives from State Boards, State Governments and registered institutions.

On 16th March, the first day of the conference, the flag hoisting ceremony was performed by Shri Sukumar Mitra and after prayer the national flag was unfurled by Shri Rakan Chandra Paul, one of the oldest potters in the village.

In the evening the conference was inaugurated by Shri Devi Prasad of Hindustani Talimi Sangh. Shrimati Labanyalata Chanda presided.

Shri Chandi Das Ghose, Secretary of the Gram Seva Sangh and Chairman of the Reception Committee, welcomed the delegates. Shri K. R. Subbaraman, Organiser, Village Pottery Industry, read out a report of the activities of the pottery industry during the year and made special mention of the new schemes that were approved by the Khadi and Village Industries Commission. The new schemes included glazed pottery units and building materials manufacturing units. The strengthening of the existing centres and demonstration squads were other aspects of the new programme.

Shri Devi Prasad emphasised the need for developing the village pottery industry to an extent that would enable it to compete with machine-made articles. He stressed the need for Gram Sankalpa in the case of potters as well as other artisans for overcoming various obstacles that stood in the way of their future development.

Some of the guests who were specially invited for the conference also addressed the delegates. Prominent among them was Shri

John F. French of Ireland who is closely associated with the Hindustani Talimi Sangh. He spoke about the various techniques used in the village pottery industry and public taste in pottery prevalent in European countries. He summed up the situation by saying that the Indian potter was doing wonderful work and, with the introduction of simple glazing his field of activities was bound to grow. He said that in foreign countries the handmade red clay pot was considered to be more decent and artistic than the factory made procelain.

An informal meeting of the pottery workers was then held under the chairmanship of Shri Devi Prasad. The following points were discussed :

1. difficulties felt by the field staff under the Khadi and Village Industries Commission and the solutions to rectify them.
2. functioning of the demonstration squad in each state.
3. resolutions to be moved in the open session of the conference on 18th March.

On 17th, second day of the conference, competitions were held on several techniques employed in the pottery industry. Over 50 persons participated in the competitions and cash prizes ranging from Rs. 10 to Rs. 30, totalling in all Rs. 300, were awarded to the successful competitors.

The first competition was on wheel work and 17 persons took part in it. In addition to the first, second and third prizes, a special prize was also awarded to one of the potters of the locality for his extraordinary skill in working on the wheel. The second competition was on finished goods and 19 members participated in it. Only three prizes were awarded in this competition. The last competition was on demonstration with own clay and design.

Practical demonstrations on simple glazing and lacquerring were arranged for the sake of the delegates.

A workers' meeting was held in the forenoon and the following points were discussed :

1. difficulties felt in forming potters' cooperative societies and in getting them registered,

2. organisational difficulties.

A meeting of the delegates was held in the afternoon. The discussion mainly centred round technical aspects, such as simple glazing, lacquerring etc., on the pottery articles and the equipments. The bhatti tax collected in the States of Bihar and Orissa, and exemption from taxes collected by State Governments were also discussed in the meeting. It was also suggested that one Training-cum-Research Centre should be started at Jamshedpur.

On the 18th, the third day of the conference, the plenary session commenced at 4.30 p. m. with Shri Devi Prasad in the Chair. The resolutions were read out and passed unanimously.

In his concluding speech, Shri Devi Prasad appealed to the delegates to do their best to make the programme a success. Shri Chandi Das Ghose, Chairman of the Reception Committee, thanked the audience and all the delegates for their co-operation and guidance.

In the morning the delegates were taken to the Common work-shed unit run by the Gram Seva Sangh at Gadaipur, four miles from Mugkalyan. The delegates got first hand information about the tile press, bhatti and the complete tile unit.

A Khadi and Village Industries Exhibition was also organised from 15th March and it lasted for a week.

This booklet is being published in two parts. Part I contains the speeches delivered at the Conference, the names of the prize-winners in the Pottery Competitions and the names of the delegates who participated in the deliberations of the Conference.

Part II contains information about the Khadi and Village Industries Commission's schemes and programmes for the development of the Village Pottery Industry. Information is also given on training techniques and the types of assistance offered by the Commission.

It is hoped that this publication will be found useful to all those interested in the village pottery industry and the welfare of the potter community in the country.

INAUGURAL ADDRESS

Inaugurating the conference, Shri Devi Prasad said :

"The problems facing the pottery craft cannot be tackled in isolation without taking into consideration the fact that the potter forms an integral part of the village community. We cannot ignore that his problems are closely linked with those of the entire village. The tenets of Sarvodaya and Gram Swaraj lay emphasis on the integral re-building of all the facets of village life and the well-being of all the units of the village. No unit can be singled out for development apart from others. Nor can it claim priority, for it will lead to one-sided development. The condition of the village potter is miserable. The poor artisan is eking out a precarious living by selling his wares. He hardly gets one square meal a day. If there is no change in our outlook and unless we think in terms of the whole village community, the potter will have to wind up whatever little work he has in hand and then he will be compelled to migrate to the city.

Menace Of Factories

The factories are fast displacing the potters and a number of wares produced in villages till now, are being displaced by the factory wares. We are told that even the ordinary household pitchers are being produced by the factories. The fashions are changing fast and clay pots are no longer in vogue. Utility wares made of China clay, glass, aluminium, stainless steel, and plastic are replacing them.

The village community comprises cultivators, weavers, black-smiths, carpenters, telis, chamars and a number of other artisans practising different vocations. Unless they look to the interests of each other and take steps jointly for their welfare and progress, the

condition of the villages would deteriorate further. The unity of the village in terms of its economy is already a thing of the past. If we wish to revive it at all, the artisans of the village should make united efforts to tackle their own problems.

Gandhiji emphasised the importance of the village as a unit in national economy and now Vinobaji is stressing the same point. According to them, the village weaver cannot exist without the co-operation and support of the cultivator who, in turn, cannot do without the village oilman. Thus the interests of all the craftsmen are knit together. Therefore, the villagers should take 'Sankalpa' to consume the products prepared in the village itself. Then, the problem of marketing their products would not arise."

Technical Aspects

Dwelling on the technical aspects of the pottery industry, Shri Devi Prasad warned the potters and other workers connected with the industry not to imitate the ways and methods of ceramic factories. He said : "Though we talk of village pottery craft, we try to imitate the techniques of big factories and adopt the spirit and principles underlying the mechanised sector. Many among us who are connected with the pottery industry think in terms of introducing porcelain and hard China clay for production of wares. This tendency reveals the feeling of inferiority complex among the workers in the industry. This signifies our tendency to look to towns and cities for imitation. If unchecked, this attitude will lead to the starting of small mechanised production units in villages themselves. But then the real problem of protecting the traditional potter from want and hunger will remain unsolved.

Dire Poverty

When we chalk out schemes and plans for the improvement in the pottery industry, we should take into consideration the dire poverty of the village potters. Can they afford to instal scientific kilns that heat materials at a very high temperature? Can we supply them up-to-

date implements? We should not forget that our village potters work with a wheel which costs hardly Rs. 3. Often it is beyond their means to go in for a wheel having ball–bearings. We should not ignore their economic condition before we blame them for clinging to their outmoded methods of work".

Continuing his address, Shri Devi Prasad dwelt on the choice and selection of clay. "A potter of a particular region is familiar only with the clay which is found locally. If he is given some different quality of clay from another area, he takes time to familiarise with its peculiarities. It is only the red clay, called the 'common clay' which can be handled best by the village potter and the wares prepared out of this clay prove perfectly shaped and durable. It is so because the village potter has been dealing with it for a number of centuries, say nearly 15,000 years and the art has been handed down from generation to generation. If we wish to help the potter, our schemes and programmes should have direct bearing with his tradition and skill and his present economic conditions, and their raw material even under those schemes of development should as far as possible be the common clay. If necessary white clay or other varieties of clays may be mixed with the common red clay which should form the basis of all types of pottery work".

Spirit Of Service

Shri Devi Prasad then exhorted the research workers in pottery to find out the process of vitrifying the common clay at 900°C. He emphasised the necessity of evolving shapes and designs of pottery in conformity with our culture and traditions instead of copying the western designs. Researches should be conducted in this direction by the Pottery Section of the Khadi and Village Industries Commission, he said.

Concluding his speech Shri Devi Prasad said: "Whatever techniques may be evolved, the aesthetic and cultural aspects of our traditional pottery industry should not be lost sight of. The spirit

of competition and commercial gain should not overwhelm the higher values. Last, but not the least important things is that though financial aid is forthcoming in plenty, what is really lacking is the spirit of service and a feeling of dedication on the part of the workers. It is their duty to see that the funds allotted for the development of this industry are utilised not merely in purchasing implements or machines but that the poor potters who are ill-clad and ill-fed, get the maximum of benefit from these aids. Monetary assistance alone would not help in the development of the traditional craft of the village potter. He needs genuine guidance and encouragement to develop his art. It is with enthusiasm and initiative that the workers should undertake their task of improving the lot of the village potter".

PRESIDENTIAL ADDRESS

Shrimati Labanyalata Chanda who presided over the conference on the opening day said :

"Throughout India there are potters and most of them are living in the villages. At one time the potter was an important member of the village community; but now he thinks of finding out alternative employment. Similar is the case with all other village industries. They are decaying and their importance to the village economy has been relegated to the background. The reason is that we are no longer village minded and have become urbanised.

Every village in our country where there is no dearth of clay, has a few families of potters who carry on their traditional profession. But their condition is bad. They do not get sufficient public encouragement. They are eking out a precarious living. Their art is gradually dying out. It is high time that we take interest in the matter and act wisely. Some ways and means should be found out to develop the village industries. Educated youths in the country have a special duty in this respect. The tendency to migrate to cities must be discouraged. Gandhiji who correctly diagnosed the causes of the decay of our village economy, started the movement for handspinning and hand-weaving and village industries.

Development of our village crafts and arts should not be undertaken merely with a view to earn foreign exchange. Similarly, Khadi and village industries should not be considered as mere palliatives to lessen the sufferings of the poor people. They, in fact, form an integral part of our national economy. The Government should also lay down a definite and clear cut policy regarding the place of village industries vis-a-vis the large scale industries.

There is one important aspect of propagating the cult of village industries. Unless the villagers pledge themselves to consume the products produced in the villages, their crafts cannot thrive. How can they expect others to patronise their products, unless they themselves do so? If we are striving to establish Gram Swaraj, we should provide full employment to every villager".

THE VILLAGE POTTER

Shri John F. French addressing the conference said :

"Looking at the village pottery from any part of India, I, as a European, am very impressed. The beautiful shapes of all sizes from three feet tall to a few inches mostly thrown on the wheel, but all actually hand made, are a thing which we no longer see in Europe. This village pottery is what I consider to be the real pottery of India with its ancient traditions behind it.

In many of the big towns there are large commercial pottery factories which make porcelain wares. These porcelain things, I must say, are very disappointing for many reasons. To begin with, the porcelain here is not particularly of good quality. So, a great deal of time and a lot of money are spent in trying to perfect it to the standard of the porcelain of the other countries. Also, the things which are made in porcelain are generally an imitation, a very indifferent imitation of English porcelain of the Victorian era. All these, of course, have very little to do with India, and have therefore, no tradition in this country. The red clay village pottery has none of these qualities. It is something pure and strong in form, and has a great dignity all its own. I feel, though, that with the present tendency of machine made wares taking the place of handmade things, this village pottery may easily suffer and (as in Europe) eventually die. It is in an effort to stop this happening that I think the village potter should be guided and advised what things to make and what things not to make. With the present improvements coming to the potter of the village such as the use of the glaze, the improved kiln for glazing the wares, better wheels and the possible use of white clay, I think it is possible that these potters may leave their traditions and perhaps follow the

mistaken foot steps of the town commercial potteries. This would be a great tragedy and loss to this country.

I feel that, as village potters have always worked in red earthenware clay, they should continue to do so. I see no real advantage in white clay over red clay, and the extra temperature required for firing white clay would at once make it a more costly process for the potter. Because these beautiful, simple, traditional shapes of the village pottery have always been in sight for the ordinary people of the villages, they tend not to see the beauty any more. People become accustomed to beauty around them and very soon become unaware and blind to its existence. This has happened, I think, to a certain extent with the village potters' work and to the villagers. They no longer really see the aesthetic beauty of the pottery articles and just think of the water pot as a container for water or a cooking pot as something to cook their food in and are unaware of and do not see the beauty in these objects. Because of their indifference to the beauty of their own work, they often have an admiration for the town-produced porcelain wares and very mistakenly feel that their own work is inferior. To give them back the confidence in their own work and to try and prevent any tendency there may be of their trying to imitate town pottery (porcelain), I think they should be greatly encouraged and guided for this. Shapes for modern use in glazed form should be developed from their own traditional work and not from something from abroad, as is entirely the case of the porcelain work here, a quality which makes it pretentious,cheap and almost vulgar – certainly unpleasant at the best. With growing need for glazed cups and saucers, plates, etc., I think there is a great future for the village pottery industry. I would like to see eventually a complete change-over to glazed earthen wares in place of the porcelain wares as we see today in the cities. Certainly it would be more beautiful and in keeping with the traditions of the country.

THE RED CLAY

Shri Prabhas Sen, Director, Design Centre, Calcutta, said :

"We have gathered here to discuss about the red clay which is known as common clay and China clay. Porcelain and stone wares have got their own merits. Those cannot be compared with the common clay though that, too, has got some qualities. But in India, we do not have stone wares. Stone wares of China are of superior quality. What is the reason for it? Why is it that only China has this peculiarity? Why not our country, too, have it? It is only because India has no such clay or raw materials. In India red clay of higher qualities is available in plenty. I have tested the red clay of various countries and I have found that red clay in India is the best among them. The red clay can be fired at a temperature of 900°C to 1000°C. The stone ware is not so good as the red clay for wheel work because stoneware requires high temperature kilns. But, for the Indian red clay, no machine of higher temperature is required. A pot mill and potter's wheel are sufficient.

Another advantage of red clay is that with red clay different types of glazing can be made. It has also been found from experiments, that our glaze can be used for 6 to 7 types of clay. This is very difficult in the case of stone ware and porcelain. If we compare the articles made of red clay, and stoneware and porcelain, I can say, the traditional pottery articles made out of red clay are far better and more durable than those of porcelain or stoneware articles. This is only because the Indian potters are well versed in making beautiful articles. Lastly, I would like to mention one point about how to develop the industry or in what way the industry should be fostered. We should make use of red clay for anything and everything and we should use only such products for our day-to-day purposes. Besides, experiments on the techniques also have to be conducted.

THE RESOLUTIONS

The conference passed the following resolutions :

I. Outstanding scientists are consistently of the opinion that Aluminium utensils are unhygienic to be used as food receptacles. As such, this conference requests the Government of India, to conduct a thorough research over the matter and prohibit, by law, the use of aluminium vessels for cooking, keeping or serving foodstuffs until research establishes the effect of this metal on human health.

II. Of late, it has become extremely difficult for the potter to get suitable clay and fuel which from time immemorial he was collecting from the available source, free of any cost. These sources of clay and fuel are now either completely closed to the potters or unreasonable charges are made. This conference, therefore, appeals to the Government of India and the State Governments what has already been represented in the previous conferences that the supply of clay and fuel has to be urgently and sympathetically viewed and a satisfactory arrangement has to be made to provide workable raw materials to the craftsmen free for collection or supply at reasonable cost to help them to continue in their profession.

III. The pottery industry must be free from all taxes. Taxes on kilns or bhattis, and potters' wheels, bazar tax, toll tax etc., that are recently collected in different places, have to be abolished. The conference strongly appeals to the concerned authorities to take immediate steps to alleviate the grievances of the pottery workers.

IV. In order to provide adequate facilities for increased production and sale of good quality pottery articles, in good quantity and at reasonable prices, special transportation facilities of raw materials,

improved equipments and finished products are essential. Hence, this conference requests the railway authorities to provide special facilities and freight concessions with immediate effect.

V. To plan village pottery development systematically a thorough survey of the existing conditions of this industry is essential, but a countrywide survey may be very expensive and may take a long time. However, this conference feels that the sample surveys have to be conducted by the Khadi and Village Industries Commission, to ascertain the socio-economic condition of the potters and developmental possibilities in selected places of different regions.

VI. The Commission's demonstration squads are extremely useful but they are too few to respond to the demand from so many places in all the States. Therefore, this conference appeals to the Commission to have during 1958-59 at least one Demonstration Squad for each State and more than one in certain States that are too large for one squad.

VII. There are able and enthusiastic workers whose advice may be sought in planning and implementation of various schemes in Village Pottery Industry under the Khadi and Village Industries Commission. This conference is of the opinion that the Commission must form an advisory body for this industry as early as possible.

VIII. Co-operative societies and registered institutions engaged in village pottery development are just assisting the artisans on no loss no profit basis. In many States, village pottery products are exempted from sales tax. This conference appeals to the concerned authorities in all States to exempt village pottery products from sales tax.

IX. This conference appeals to the pottery workers in India to realise their position in the changed atmosphere due to Gramdan and to rise up to the occasion

by devoting themselves to the service of all fellow craftsmen and workers of larger society to which they belong in this age of socio-economic revolutions and this conference believes that this can only be achieved by taking to "Gram Sankalpa" which is based on complete self-sufficiency in the village to develop all art and craft among the villagers for mutual benefit.

LIST OF PRIZE WINNERS

I. 1. Nature of Competition; Wheel Demonstration

2. No. of Competitors 16

3. No. of Prize Winners 4

4. Nature of Award Cash

5. **Name of the Winner : Amount**

1. Shri Ananth Paul	Rs. 30
2. Shri Manmathnath Paul, Mugkalyan.	Rs. 25
3. Shri Hari Bhau Ingale, Regional Training Centre, Bhadravathi.	Rs. 20
4. Shri Rakhal Chandra Paul, Mugkalyan.	Rs. 20

II. 1. Nature of Competition Finished Articles

2. No. of Competitors 19

3. No. of Prize Winners 3

4. Nature of Award Cash

5. **Name of the Winner**	**Amount**	**Articles**
1. Shri C. Manian, Technician, Mayanur Post, Kerala State	Rs. 30	Magan Choola
2. Shri Abdul Kadar	Rs. 25	Cooking pot
3. Shri Ramshankar Prajapathi, Regional Training Centre, Meerut	Rs. 25	Black pottery article (Electric Lamp Stand)

III. 1. Nature of Competition : Green articles prepared during the conference on their own accort.

2. No of Competitors 18

3. No of the Prize Winners 6

4. Nature of Award Cash

5. **Name of the Winner**	**Amount**	**Pattern of article**
1. Shri C. Manian, Mayanur, Kerala State	Rs. 25	Utility Wares (Surayi)
2. Shri Rakal Chandra Paul, Mugkalyan	Rs. 20	Cooking pot with lid.
3. Shri Chedilal Chunar, Uttar Pradesh	Rs. 30	Decorative wares (A flower rase)

Name of the Winner	Amount	Pattern of article
4. Shri Munivenkatappa, Potter, Demonstration Squad, C/o Bombay V. I. Board, Bombay	Rs. 20	(A garden pot).
5. Shri Hari Bhau Ingle, Regional Training Centre, Bhadravathi.	Rs. 20	(Mould work – a filter)
6. Shami Gosh.	Rs. 10	(A beggar woman)
Total Amount	Rs. 300	

NAME OF THE DELEGATES AND SPECIAL INVITEES

I. Kerala State

1. Shri C. Manian	Technician Mayanur, Common Workshed Unit, (Palghat Dist.)
2. ,, Ramankutty	Technician, Andimadam, Potters Co-operative Society, Olavakkot Post, (Palghat Dist.)
3. ,, N. Damodaran Nair	Extension Officer, Pilot-Project, Neyyattinkara Post. (Kerala)
4. ,, M.Ambikapathi	Instructor, Regional Training Centre, Naduvannur, Kurumbranad, (Kozhikode Dist.)

II Madras State

1. Shri R. Karuppiah	Inspector, Village Pottery-Industry, C/o. Zonal Director's Office, 71, Mission St., Tiruppur Post.

III. Mysore State

1. Shri K. P. Sankara Narayana Pillai	Assistant Ceramist, Central Village Pottery Institute, Khadi & Village Industries Commission, Khanapur Post, Belgaum Dist.
2. ,, G. V. Chetty	Master Potter, -do-
3. ,, H. G. Kumbar	Technician, Mugud Post, Common Workshed Unit, Via. Dharwar.

4.	Shri Chudalayandi	Instructor, Demonstration-squad, C/o. State Khadi & V. I. Board, Mysore.
5.	,, Kuppuswamy	Potter, —do—

IV. Bombay

1.	,, K. R. Subbaraman	Organiser, Village Pottery Industry, Khadi & Village Industries Commission, P. B. No. 482 Bombay.
2.	,, S. K. Mirmira	Secretary, Gramodyog Sangh, Bhadravathi Post, Chanda Dist.
3.	,, Devi Prasad	Hindustani Talimi Sangh, Sevagram Post, Wardha
4.	,, Ambalal Vallabhai	Supervisor, Intensive Area Scheme, Sultanpur, Gujarat.
5.	,, Doshi	Director, Village Industries & Cooperation, K. & V. I. Commission, Bombay.

V. Orissa State

1.	,, Kailaschandra Mohant	Potter,, Instructor, Demonstration Squad, C/o State Khadi & V. I. Board, Bhubhaneshwar.
2.	,, R. S. Thakre	Pottery Organiser in Gramdan Village, C/o. Bhoodan Karyakarta, Jeypore Post.
3.	,, Bimal Misra	President, Potters Cooperative Society, Puri.
4.	,, D. S. Behra	President, Kumbhar Potter's Cooperative Society, Bidanasi, Cuttack.

VI. West Bengal

1.	Shri Prabhash Sen	Artist & Ceramist, Handicrafts Board, Calcutta.
2.	,, John F.French	Artist & Ceramist of Ireland, Calcutta.
3.	,, S. R. Sen	Deputy Director of Cottage Industries, Govt. of West Bengal, Calcutta.
4.	,, Jitendra Kushari	
5.	,, Khitesh Roy Choudary	Principal, Basic Training Institute, Balrampur.
6.	Smt. Labanyalata Chanda	Balrampur Ashram.
7.	Shri Madhusudhan Dhar,	Instructor, Balrampur Gram Seva Sangh, Demonstration Squad, Mugkalyan.
8.	,, Manmath Paul	Potter, Mugkalyan
9.	,, R. D. Choudary,	Technician, Howrah.
10.	,, M. Bhatta-charji	-do-
11.	,, Raha	Instructor, Bengal Ceramic-Institute, Calcutta.
12.	,, Krishnapad Behra	Sarvodaya Seva Ashram, Mirzapur.
13.	,, Mehdi Behra	-do-
14.	,, B. K. Das	Calcutta.
15.	,, B. K. Poddar	Pottter, Calcutta.
16.	,, Machiketha	Mugkalyan.
17.	,, Jagendradas	Arunghat, Nadia.

18.	Shri Brojendranath	Arunghat, Nadia.
19.	,, Jepuran Paul	Potter, Mugukalyan
20.	,, Shital Paul	Potter, Amta
21.	,, Jahujit Paul	-do-
22.	,, Jagendra Paul	-do- Arunghat
23.	,, Hiralal Khana	Potter, Howrah
24.	,, Maniklal Khana	-do-
25.	,, G. B. Khanna,	Potter, Howrah.
26.	,, N. C. Kuila	,, Mugkalyan.
27..	,, N. C. Paul	-do-
28.	,, Ganpeth	-do-
29.	,, R. B. Nickel	-do-
30.	,, Shied Saidali	Potter, Mugkalyan (Artist).
31.	,, Safaruddin Ahmed	-do-
32.	,, Korbal Ali	-do-
33.	,, Peer Ali	-do-
34.	,, Nirmal Kavi Raj	-do-
35.	,, Madan C. Paul	
36.	,, Amoolya Raghuraidas	-do-
37	,, Ananth C, Paul	-do-

38	Shri Rackal C. Paul	-do-
39.	,, Vasudev Paul	-do-
40.	,, Panchu Paul	Potter (Artist) Mugkalyan
41.	,, Lallu Paul	-do-
42.	,, Nithai Paul	-do-
43.	,, G. Paul	-do-
44.	,, Adhir C. Paul	-do-
45.	,, S. Paul	-do-
46,	,, Niranjan Paul	-do-
47.	,, Laxman Paul	-do-
48.	,, Bhudev Behra,	-do-
49.	,, Mahadev Paul,	-do-
50.	,, Madan Sanchatha	-do-
51.	,, Bankin Paul	-do-
52.	,, Kardu Paul	-do-
53.	,, Jibar Paul	-do-
54.	,, Hrishikesh Paul	-do-
55.	,, Debar Paul	-do-
56.	,, Sarath C. Paul	-do-
57.	,, Bista Paul	-do-
58.	,, Haripad Paul	-do-
59.	,, Nithai Paul	-do-
60.	,, Sarada Paul	-do-

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61.	Shri Santosh Paul	Potter (Artist) Mugkalyan
62.	,; Mahadev Behra	-do-
63.	,, Nikil Paul	-do-
64.	,, V. C. Paul	-do-
65.	,, Gopal	-do-
66.	,, Kanai Paul	-do-
67.	,, Biboothi Paul	-do-
68.	,, Nirmal Bhattacharya	Technician, Gram Seva Sangh, Mugkalyan
69.	,, Deebar Paul	Potter, Calcutta
70.	,, Satish Paul	-do-
71.	,, Yudeshwar Paul	Artists, Raghurampur
72.	,, Pandu Gopal	Artist, Calcutta
73.	,, R. V. Lele	Calcutta
74.	,, Himansha Gosh	Instructor, Training Centre Calcutta
75.	,, Gobindo Gopal	Artist, Mugkalyan
76.	,, Sudhir Choudary Raha	Calcutta
77.	,, Ratan Chatopadhyaya	,,
78.	,, Narotham Das	Howrah

79.	,, Gobinda Lal Haji	M. L. A., Howrah.
80.	,, Bhishnapada Paul	Howrah.
81.	,, Bakul CH.Paul	,,
82,	,, Skitchandra Paul	,,
83.	,, Upendranath Paul	,,

VII. Bihar State

1.	Shri P. P. Sinha	Artist, Manika
2.	,, Jagatpathi Prasad	Supervisor, Patna,
3.	,, Sevak Deena Vriksha	President, Bihar Rajya Kumbakar Kalakar Sangh, Patna.
4.	,, S. M. Ezaz	Supervisor, Pilot Project–Area, Patna.
5.	,, Fakira Pandit	Artist, Patna
6.	,, Balram	,, Jamshedpur
7.	,, Harimohan Pandit	Organiser Cooperative Society, Purandharpur, Patna.
8.	,, Bansi Pandit	Artist, Patna.
9.	,, B. N. Pandit	Patna.

VIII. Madhya Pradesh

1.	Shri Hansraj	Potter, Ujjain.

IX. Uttar Pradesh

1.	Shri Baiju Prasad	Instructor, Regional Training Centre, Sri Gandhi Ashram, Meerut
2.	,, Chedilal	Potter, Technician, Chunar
3.	,, K. R. Praja-pathy	Editor, Kumbakar, Patrika Banaras
4.	,, Benshunath Dhar	Banaras.

PART II

INFORMATION ABOUT SCHEMES AND PROGRAMMES FOR DEVELOPMENT OF THE VILLAGE POTTERY INDUSTRY

PROGRAMME FOR 1958—59

This year, the programme has been limited to a great extent for consolidation of the work so far started and to provide adequate facilities in training, demonstration, equipment-supply, general organisation and establishment of a few production units directly under the Khadi and Village Industries Commission. The Central Village Pottery Institute (which was called Central Training-cum-Research Centre) and the three Regional Training Centres will be strengthened. The three new schemes that have been approved by the Commission are :

1. Experimental Ceramic Station for the supply of basic materials for glazed pottery production centres.

2. Glazed Pottery Units for production of white clay glazed wares concentrating mostly on utility wares like bowls, jars, dishes etc.

3. Building materials units for production of good quality bricks, roofing tiles, flooring tiles, clay pipes etc.

The Commission's scheme for the organisation and development of Village Pottery Industry consists of :

I. Production Programme.

II. Extension Programme.

III. Marketing Programme.

IV. Training and Demonstration.

V. Central Organisation.

The pattern of assistance now available from the Commission is shown below :—

Units	Grant/ Subsidy Rs.	Loan Rs.	Employment target per Unit (Direct)	Production target per unit per year
1	2	3	4	5
I-A. Production Units				
1. Common Workshed Unit				
a) Workshed, well, Bhatti-shed and clay-washing tank.	4,500	4,500	10 Potters' families	8,000 for 1st year & Rs. 15,000 from 2nd year onwards.
b) 75% of one Supervisor's salary (Rs. 90 out of Rs. 120 p. m.)	1,080			
c) Loan for purchasing stocking and selling of village pottery articles including pottery equipments (working capital upto Rs.- 3,000 per Unit.	3,000			

1	2	3	4	5
2. Experimental Ceramic Station (1st year):			25	17,500 for I year ; 35,100 from 2nd year onwards
Non-recurring	42,950	42,950		
Staff	9,060	—		
Working capital	—	12,000		
3. Glazed Pottery Unit:			29 persons	13,650 for Ist year ; 36,450 from 2nd year onwards.
Non-recurring	15,500	15,500		
Staff.	4,000	—		
Working Capital	—	12,000		
4. Building Materials Unit:			28 persons	
Non-recurring	7,500	7,500		35,000
Staff	3,260	—		
Working Capital	—	10,000		
B. Supply of Equipments :				
1. Potter's wheel attachment each costing Rs. 60 or above. Type I	30	30	1 person	800
2. Potter's wheel each costing Rs. 120 or above. Type II	60	60	1 ,,	800
3. Potter's wheel each costing Rs. 150 or above. Type III	75	75	2 ,,	1,600

1	2	3	4	5
4. Set of wooden moulds each set costing Rs. 120 or above.	60	60	2 persons	1,6000
5. Bhatti Shed each costing Rs. 200 or above.	100	100	–	15,600
6. Tile Press costing Rs. 800 or above.	400	400	8 ,,	6,000

Subsidy available is 50% of the cost of equipment or the amount shown against the column of grant, whichever is less.

II. Extension Programme

Share Capital loan for Co-operative Societies.		Loan	(On an average, one Co-operative Society with Rs. 500 loan).	

III. Marketing Programme

Establishment grant to selling agencies as per sales of the previous year.	Grant			

IV. Training Programme

Central Village Pottery Institute, Khanapur (Mysore)	—	—	Stipendiary scales for 30 trainees.	—
Regional Training Centres (3 existing and 2 new).	—	—	120 trainees	—

1	2	3	4	5
Demonstration Squads (7 existing and more new squads).	—	—	100 demonstrations.	—
V. Central Organisation				
Head Office in Bombay and Inspectors in different regions. (7 existing and more expected this year).				

Production is calculated for 10 months excluding the two months of heavy rains. The calculation is also based on the assumption that over and above the existing average production per family of Rs. 60 per month, additional production of Rs. 20 per family per month will be possible with the assistance made available.

Financial Assistance.

Financial assistance is available only for registered institutions, Co-operative Societies, Statutory State Boards, State Governments and Community Project Administration. A brief description of the schemes mentioned above is given below. Subsidy on equipments is available to individual potters also.

I. A. Production Units.

(I) **Common Workshed Units :**

This scheme is to provide adequate Working space, working facilities and to encourage organised production and sales by groups of potters. Generally, potters suffer from lack of working space which is very necessary for successful shaping, drying and stocking before baking.

Each Common Work-shed Unit will have an area of about 4,500 sq. ft. and it is intended to accommodate 10 potters' families. An amount of Rs. 9,000, 50% grant and 50% loan, is provided. The loan is interest-free and is repayable in five years. The above space can be secured within the available amount.

A blue print of the plan of a Common Workshed is available to enable the institution to put up the shed without further delay. As can be seen from the plan the shed is to provide living and working space for 10 potters' families. After making the provision, if all the 10 blocks are not filled the vacant blocks can be used for stocking raw materials finished wares, etc. The structure is to be placed so as to provide the required space within Rs. 9,000 including the cost of clay-washing tank and other things, for common use. The required plot of land for the workshed has to be provided by the institution.

The method of organising production work in the workshed is simple enough if the institution is already engaged in developing this industry. With the various items of assistance from the Commission the task is lightened to a great extent. At first there may not be appriciable profit or it is quite possible that for the first year the production and sales are low. But once the unit is established it will yield very good results. For general guidance certain suggestions are given below :

1. One or two of the local potters possessing skill, efficiency and experience can be trained in the improved techniques in the nearest Regional Training Centre for 5 months.

2. The local potters should be explained the extent of help available for their work.

3. The plot for workshed has to be convenient to Institution and to the potters, preferably very near the existing " Kumbharwada. "

4. In the construction of the workshed certain simple structures

like wall shelves and upper berths to keep wares for slow drying, have to be incorporated.

5. Village Potters' products should be used in roofing, flooring etc. for the workshed.

6. The services of one of the five demonstration squads available for this purpose can be availed of and the enthusiasm of the potters aroused.

7. Acquaintance with the local public needs in village pottery, receiving orders in consultation with potters and undertaking to supply the same within a fixed date, have to be done by the institution through the Supervisor.

8. Standard wares like pipes, special tiles, water-pots etc., that can be readily marketed may be bought from the local potters at, say 75 per cent of the market value and stocked in the workshed if some blocks are vacant or in separate rented building. After effecting the sale, the potters may be paid the balance lying to their credit.

9. Enough margin of profit to repay the loan amount on the workshed can be provided when the establishment is satisfactory.

10. From the earnings of each potter certain percentage for 'thrift fund' can be arranged.

11. Purchase and sales of pottery wares can be started straightway without waiting for production in the workshed. Thus the working capital can be utilised easily and the potters can be organised.

12. Making of better bricks and roofing tiles of standard size and shape have to be encouraged. Specialised production in different items of village pottery by potters in the workshed has to be achieved in due course.

13. Achievement of sufficient progress in additional production and fuller employment will be possible if the Institution understands the public needs and the potters' potentialities.

14. Monthly progress reports containing a statement of expenditure incurred, progress of achievements etc., are to be sent before the 10th of the succeeding month to the Regional Inspector who will be helpful to the Institution.

15. In preference to the recommended plan for the workshed in the blueprint, if any change is desirable as per the local conditions the same has to be got approved from the Organiser.

Assistance to establish such a unit will be considered only to such Institutions which have adequate land for the purpose, and where more than 10 potters' families are already engaged in traditional pottery very near the Institution. The Institution before applying for a unit has to explain the scheme to the potters' families, receive applications from more than 10 deserving potters' families for assistance mentioned for one unit and on the whole the Institution must be in a position to establish this Unit, including construction of shed and accommodation of the potters, within 3 months after the receipt of funds.

The Institution running this unit has to see that the potters accommodated in the Common Workshed continue to produce pottery in their traditional methods, incorporating the improvement in implements and techniques, in due course. These potters in the workshed are to be given piece work or allowed to work on self-employment basis and not to be engaged on salary basis. The credit facillty can be made available to each potter from the loan received by this institution as Working Capital but it has to be extended by way of small advances against the production in his next bhatti, so that it will not be treated as a long-term loan, as loan involves risk. The potters may return the advance in kind. In fact, the Institution will take over all their production and

arrange for quick sales at reasonable price. A reasonable margin of profit will be retained by the institution before paying off the potters, for developmental activities and for repayment of the loan. A thrift fund may also be built up. The working capital of Rs. 3,000 is expected to enable the Institution to achieve production of pottery worth Rs. 15,000 per year. This will be possible if once in two months, the working capital is completely used up for production purposes.

The services of a trained person should be obtained by the Institution for running the unit. He will work as Supervisor-cum-Manager of the Unit, receiving a salary of Rs. 120 per month - 75% in the first year, 60% in the 2nd year and 25% in the 3rd year of the salary of the Supervisor can be had as grant from the Commission. The Institution will bear more and more of the Supervisor's cost gradually and from the 4th year the unit is expected to become self-sufficient. The Supervisor has to be charged with the responsibility of successful running of the unit and for the achievement of the targets.

The working capital of Rs. 3,000 is repayable in 3 years, first year interest-free and from the 2nd year onwards 3 per cent interest.

(2) **Experimental Ceramic Station** (details including financial implications of a specimen unit) :

White clay wares are in demand not only in cities and towns, but now-a-days in the rural parts also. Pottery wares for keeping and serving food, like jars, bowls, cups and saucers and plates are becoming more and more popular. One Experimental Ceramic Station is expected to feed basic materials of standard quality at reasonable price to 6 glazed pottery units located within 100 miles radius. The details of financial assistance for one experimental ceramic station are given below.

Non-Recurring

	Rs.
a) Land on long lease.	–
b) Buildings–10,000 sq. ft. at Rs. 4 per sq. ft.	40,000
c) Machinery and equipment (including kiln)	41,900
d) Furniture and fixtures.	2,000
e) Water arrangement.	2,000
Total	85,900

Recurring

Staff.	9,060
Raw materials.	16,500
Wages.	9,600
Rent, rates etc.	2,500
Total	37,660

First Year :

	Total expenses Rs.	Grant Rs.	Loan Rs.
Non-recurring	85,900	42,950	42,950
Recurring	9,060	9,060	—
Working Capital	17,950	—	12,000
Total Rs.	1,12,910	52,010	54,950
Second Year :	—	9,060	Nil
Third Year :	—	Nil	"

The centre is expected to produce basic materials in good quantity during the first year itself. From the 3rd year onwards, the unit is expected to become self-supporting.

In one experimental ceramic station, 25 persons will be employed and basic materials worth Rs. 17,500 will be produced during the first year and Rs. 35,100 worth from the 2nd year onwards.

One Experimental Ceramic Station has been started in Kasturba Seva Mandir, Rajpura, Punjab. More centres of this pattern will be started in other parts of the country only after observing the performance of the above unit.

(3) **Glazed Pottery Unit :**

One such unit will employ 29 persons and produce high quality pottery worth Rs. 13,650 during the first year itself and production worth Rs. 36,450 from the 2nd year onwards. The details of expenditure of one unit are as follows :–

Non-recurring :	**Rs.**
a) Land	1,500
b) Sheds with water arrangement	5,800
c) Kilns with chimney	12,000
d) Machinery and equipment	7,700
e) Furniture for drying etc.	2,000
f) Sundry equipment	2,500
	31,000

Recurring :	
a) Salary	4,000
b) Raw Material	15,000
c) Wages	12,000
d) Rent, rates and contingencies	2500
Total	33,500

Financial assistance required will be as follows :—

First Year	Total	Grant	Loan
	Rs.	Rs.	Rs.
Non-recurring	31,000	15,500	15,000
Recurring salary	4,000	4,000	—
Working Capital	28,500	—	12,000

A net loss of Rs. 1,350 during the 1st year will be borne by the Institution.

Second Year : No assistance. Net profit of Rs. 1,440 is expected.

The basic materials required for the glazed pottery unit must be available for the time being either through Small Scale Industries or through established pottery factories until an Experimental Ceramic Station will be in a position to supply the same. With this limitation in view the location of glazed pottery units will be limited to such Institutions which are confident in securing ready basic materials and in successful implementation of the programme with adequate previous experience in this line.

For establishment of the glazed pottery unit, it should not take more than 6 months after receipt of funds by the institution.

This scheme is intended to enable village potters to produce glazed pottery of the kind now produced in factories, demand for which has been increasing far in excess of the supply. The products will include white clay wares with mostly leadless glazes maturing at about 1100°C., such as bowls (katories), pickle-jars (small size), cups and saucers, plates, drinking pots, serving pots, etc. The village potter has been aspiring to work in this modern field and it is high time that opportunities are made available for him to use his skill and energy in the production of articles that are in demand in the civilised world. The supply of basic materials – ready mixed clay body, suitable glazed and ceramic colours have to

be arranged from a suitable agency which can assure the unit a steady supply of these at reasonable rates. At present there are a few ceramic / centres run by either the Small Scale Industries Board, State Governments and Pottery Factories that are commercially producing such basic materials, also for supply. Without a well-planned scheme, the help offered in some States in the form of ready glaze and body and baking facilities in a particular place are insufficient for extending the scheme to a wider area. In fact, the proposed scheme will enable to utilise a part of the abundant under-employed or unemployed skill and energy of the village potter in the production of many articles that are in good demand. Decentralisation in glazed pottery production will bring down the over-head charges, the damage in transit and increase the variety of pottery as per local taste without increasing the price of such products. A vast field will be opened not only to the potters, but to all talented people through these glazed pottery units.

In one such unit, glazed pottery worth Rs. 36,450 (about 31 tons) would be produced and 29 persons will be directly employed. Indirect employment will also be made available for a good many persons. The fixed capital including land, buildings, equipments and kilns will be of the order of Rs. 31,000 and working capital required for one unit Rs.12,000 which is nearly 1/3rd of the total yearly production of one unit.

The scheme has been worked out on the generally accepted pattern of other schemes under the Commission. The unit must be run through one of the acknowledged agencies, namely Registered Institutions, Co-operative Societies, Statutory State Boards, Community Projects or State Governments or directly by the Commission.

From the date funds are made available to a suitable agency, it should take not more than six months for purchase of land, erection of sheds, installation of equipments, procurement of raw materials,

trials in body and glaze and part of the initial training for workers who will be engaged for production in the unit. No returns can be expected for this period. For the next six months, training-cum-production will result in 75% of the expected average production. From the second year onwards, the unit is expected to work on profit.

In The Second Year, the recurring expenditure of Rs. 35,010 will bemet from the sales proceeds. The working capital of Rs.12,000 is expected to revolve three times in the year. The net profit of Rs. 1,440 will be put in the reserve fund for repayment of fixed capital loan.

From the 3rd year onwards, ear nings of the workers will increase, and the centre will be in a position to add to its reserves. Further development will be possible without any external aid.

Building Materials Pottery Unit :

Building materials of good quality and quantity are in demand with the increase in the number of buildings and other developmental activities. To channelise a part of the production of these building materials along co-operative lines and under registered institutions, a suitable unit has been worked out. In one such unit, 28 persons will be directly employed producing goods worth Rs. 35,000. The details of requirements of one unit are as follows :-

Non-recurring :

a) Building (3,000 sq. ft.)	Rs. 6,000
b) Equipment	Rs. 9,000

Recurring :

a) Salary	Rs. 3,260
b) Working Capital	Rs. 18,200
c) Wages	Rs. 10,335
d) Rent, rates and other contigencies.	500
	Rs. 47,295

Financial assistance will be as follows :—

First Year	Total Expenses Rs.	Grant Rs.	Loan Rs
Non-recurring	15,000	7,500	7,500
Recurring	3,260	3,260	—
Working Capital	29,035	—	10,000

Second Year :

No assistance. Net profit is expected to add up to Rs. 1,655.

The Building Materials Pottery Unit will have a capacity to produce normally nearly, 5,00,000 bricks, 3,50,000 country roofing tiles, 72,000 flooring tiles, 3,600 pipes, 2,700 special tiles, 330 Magan Choolas, 760 garden pots and 760 well-rings,in all priced at Rs.35,000. The same unit can be converted into the production unit of pan tiles of West Bengal, producing about 2,00,000 pan tiles, 20,000 ridge tiles and 4,000 special tiles. The yearly products of one centre will be sufficient to supply materials for :-

1. building 30 new houses each with a plinth area of 390 sq. ft.
2. new roofing of 30 houses.
3. new flooring of 20 houses.
4. 7,200 ft. of pipes for irrigation.
5. supplying clay rings for 15 wells.

It will give employment to more than 30 persons. The yearly pan tile production will be enough for roofing 90 standard houses of a total floor area of 36,000 sq. ft.

From the date funds are made available to a suitable agency, it should not take more than six months for purchase of land, erection of sheds, installation of equipments, procurement of raw materials,

trials with the local clay, etc. No returns can be expected for this period. For the next six months training-cum-production will result in 75% of the average production for this period. From the 2nd year onwards, the unit is expected to work on profit.

B. **Supply of Equipments :**

Individual potters also can avail of this assistance through registered institutions, Cooperative Societies or State Boards which have taken up manufacture and supply of the equipment and which have been recognised by the Commission. Either the amount of subsidy or 50% of the cost, whichever is less will be available for individual potters. Funds to institutions under this head are needed for two purposes:

1. the loan required to enable the institution to manufacture and supply these equipments is to be treated as *working capital* and it should be drawn under the head "Purchase and Sales of Pottery articles";

2. the loan required to enable the potters to meet the other half of the cost of equipments and to repay the same in instalments has to be treated as non-recurring capital loan and accordingly those rules will apply for its repayment and interest.

Improved potter's wheel enables potters to engage themselves in precision work. It is safer to handle and useful for quality work as against the traditional wheel.

IMPROVED POTTER'S WHEELS

1. Wheel Attachment :-

This is cast in iron, turned true and fixed with ball-bearings. This is a device to achieve the ball-bearing effect under the existing traditional potter's wheel, either with wooden frame with clay rim or

of solid stone. Physically the existing traditional wheel can be placed upside down and the attachment in upside down position can be screwed at the centre. The wheel then can be put right. The base of the attchment consists of two wooden strips also screwed to the attachment. Thus assuring a stable base. Its cost is Rs. 60 per wheel.

Special Advantages :– The advantages of the ball-bearing wheel are obtained without much cost.

2. **Sevagram Wheel :–**

This design consists of two iron pipe cuttings with ball-bearings in between, at the bottom and top. The outer pipe is welded with a wheel-head disc at the top and three angle iron legs at the bottom. The traditional potter's wheel-frame of wood is also supplied. Its cost Is Rs. 60 per wheel.

Special Advantages: In the manufacture of these wheels a foundry is not necessary as readily available iron parts are welded suitably to fabricate the same.

3. **New Model Potter's Wheel :–**

This design has got its body, legs and wheel-head cast in iron, double row angular ball-bearings or two sets of ball-bearings fixed in it. There are six wooden spokes which can be fixed in position with screws. Three iron rings are supplied which have to be tied in position by string before plastering with clay mixed with fibre which is the same as in the traditional potter's wheel. Its cost is Rs. 120 per wheel.

Special Advantages :– Durability, stability and efficient performance are the three main advantages.

4. **Kallupatti Potter's Wheel :–**

This design is almost similar to that of the New Model Potter's Wheel except that instead of removable wooden spokes there is the wooden frame of the traditional potter's wheel for fixing which

there is wheel-head with holes and central cylindrical projection to get into the frame. The cost of this wheel is slightly more than that of the attachment but is less than that of the improved potter's wheel. Its cost is Rs. 100 per wheel.

5. **The Chain-driven Potter's Wheel :-**

This design consists of a cast iron wheel-head with iron rim for the fly-wheel supported with a suitable central pin and housing for a set of ball-bearings. Free-wheel, chain and crank of the standard parts of a cycle are used for rotating the wheel. The parts are fixed on a wooden plank. The chain is protected from clay and water by a suitable cover of galvanised iron sheet. The fly-wheel also has a depression for using a stick to give the start. Its cost is Rs. 150 per wheel.

Special Advantages :- This design enables the potter to use his skill and energy for better production in quality and quantity, by taking the assistance of an unskilled labourer or one of his family members to rotate the wheel. The fly-wheel and the free-wheel enable accumulation of momentum for easy and efficient work. This wheel is specially suitable for turning and finishing the articles, upside down.

General Advantages of Improved Potter's Wheels

The traditional potter's wheel, is no doubt, a wonderful and outstanding achievement, the origin of whose invention is shrouded in the remote past. All the same due to the wobbling of the traditional potter's wheel by its rotation in many planes it demands high skill (1) to handle the wheel, (2) involves risk if the wheel gets displaced from the pin,especially for the beginners, and (3) and does not allow precision work especially for finishing the articles by the turning process.

To overcome the above short-comings, many attempts have been made by many persons in different parts of the country. Bush-bearings do not solve the problem as the friction is quite considerable.

Ball-bearings and thrust-bearings have been used in different ways. Introduction of ball-bearings overcomes the above short-comings but offers a little more friction in movement when compared to the traditional potter's wheel where the weighty wheel is supported and rotated on a highly polished hard wooden peg inside a highly polished hard homogeneous stone cup. The advantages in using a ball-bearing wheel are much more than disadvantages like increased price and slightly increased friction in the motion.

To sum up the above points it may be stated that the advantages in having ball-bearings in potter's wheels are :

1. even a beginner will be able to pick up throwing in a short time.
2. there is no risk in handling such wheels.
3. precision work which is required in improved pottery is possible.

Wooden Moulds :

The set of wooden moulds offered at subsidised price under item No. 4 is for making clay pipes of different diameters, and special tiles. The set enables making of :-

a) clay pipes of 2' effective length and in diameters of 9", 6", 4", 3" and 2".

b) ventilator tiles (single and double) Mangalore Type

c) skylight tiles (-do-) ,, ,,

d) ridge tiles, and ,, ,,

e) flooring tiles.

This set is complete with wooden trays and other necessary small tools.

Bhatti Sheds :

This is for constructing a suitable shed over the existing bhatti of the potter. It is intended to provide protection against rain or hot sun. The subsidy amount can be had in advance if applied through a Registered Body. The total cost of construction and materials for one such bhatti shed is taken as Rs. 200 of which Rs. 100 or 50% cost of construction, whichever is less, can be had as subsidy. There is no particular type design for this shed. It is approximately 12' x 8' and built of brick pillars and tiled roof.

The press for roofing and flooring tiles will enable the manufacture of tiles with definite shape, size and finish.

II. Extension Programme:

Share Capital Loan : This help is offered to encourage formation of more and more potters' Co-operative Societies with adequate share capital to enable them to function satisfactorily. Existing Co-operative Societies requiring enhanced credit worthiness may also increase their share capital by availing this assistance.

This Loan is for individual potters (share holders) for increased share capital

The demand will be considered and assistance given only through registered Co-operative Societies.

1. The loan shall be disbursed up to a maximum of 87½% of the value of shares, the balance being contributed by the potters. Each individual shall not have more than five shares and the valueof each share shall not exceed Rs. 50.

2. The loan shall be repayable in 5 equated instalments of capital and interest, the first instalment being repayable on the anniversary of the drawal of the loan.

III. Marketing Programme:

The assistance is intended for enabling the Institution to have satisfactory arrangements for sales. The assistance is expected to be nearly 75% of the actual expenses mainly under the three heads described below.

1. Purchase and Maintenance of bullock-cart, draft animals or other conveyance facilities for transporting either raw materials or finished goods for sale.

2. The rent of premises for Sales Depot and/or godown. The Sales Depot can be in a market place where the wares can be made available throughout the year instead of on weekly shandy days only, and

3. The salary and/or commission based on sales of the Salesman.

The following pattern is adopted by the Commission for consideration of grant to selling agencies :-

Grant of 20% on actual sales during the previous year, by the agency, if they exceed Rs. 2,000, but are less than Rs. 5,000.

15% on sales exceeding Rs. 5,000, but below Rs, 10,000.

10% on sales exceeding Rs. 10,000.

In the second year the institution will get reduced assistance, and in the third the assistance will be further reduced. From the fourth year onwards it will cease to receive any assistance for sales establishment. The details of three years' assistance are as follows :—

On annual sales of village pottery worth	Grant 1st year	2nd year	3rd year
Rs.			
2,000 to 5,000	20 %	15 %	10 %
5,000 to 10,000	15 %	10 %	Nil
above 10,000	10 %	Nil	Nil

The maximum grant available per Institution is limited to Rs. 3,000 per year. This assistance will not be available on the sale of conventional bricks and roofing tiles.

IV. Training Programme :

Special facilities for training for Supervisors, Instructors, Organisers, Master Potters, Demonstrators etc. are available as per particulars mentioned below :–

A. Central Village Pottery Institute, Post & Railway Station, Khanapur, Dist. Belgaum (Mysore State).

(1) Duration of training.	10 months.
(2) Courses available.	i) Pottery Supervisor. ii) Master Potter.
(3) No. of stipendiary seats.	30
(4) Stipend per trainee per month.	Rs. 40
(5) T. A. to trainees.	Actual 3rd Class fare by rail or other means of conveyance and incidental expenses during journey at Rs. 2 per day per trainee.

Qualifications :

Pottery Supervisor's Course :	**Master Potter's Course :**
I) Academic Qualification : Intermediate ; Preference will be given to Science Graduates.	(I) Primary School Leaving Certificate or up to that standard.
ii) Previous experience and/or Technical qualification in pottery advantageous. Aptitude for village pottery development and village uplift.	(2) Same as for Pottery Supervisor's Course.

(6) Age :- 18 to 35 years. 18 to 35 years.

Registered Bodies which have received assistance or applied for assistance to the Commission or which are engaged in village pottery development may recommend suitable persons for training.

This Centre is also engaged in simple experiments and research on practical problems in village pottery development. One Glazed Pottery Unit and one building material pottery unit will be worked directly by this Institute.

B. Regional Training Centres.

These Centres are run by :

(I) Sri Gandhi Ashram, Meerut (U.P.)

(2) Gramodaya Sangh, P. O. Bhadravati, Dist. Chanda, Railway Station–Bhandak (Bombay State).

(3) Kurumbranad Development Society, P. O. Naduvannur Railway Station–Pantalayini, (Kerala State).

(4) One Centre in the East, probably in West Bengal and one & (5) in the West, may be in Saurashtra will be established this year.

Particulars :

1. Duration of training	5 months per course. 2 courses per year
2. Date of commencement	First May and First November
3. Courses.	Specialised training in one or two types of pottery production i) Potter's Course ii) Junior Supervisor's Course
4. No. of stipendairy seats.	15, of which generally 10 for Potters' Course and 5 for Junior Supervisor's course.
5. Stipend per trainee per month.	Rs. 40.
6. T. A. to trainees :	3rd Class fare by rail or other means of conveyance and incidental expenses during journey at Rs. 2 per day per trainee.

Qualifications :–

Professional potters with skill and experience, aspiring to learn new techniques. A few seats are available for persons of matric standard and are interested in village pottery development (Junior Supervisors).

6. Age : 18 to 35 years.

7. Admission : Candidates deputed by parties having definite programme for utilising their services after training, are given preference.

Application forms and other details may be had direct from the respective Training Centres.

C. Demonstration Squads :-

The Training Centres are very few and often far away from potters' colonies. Therefore, to reach more and more places favourable for development of this industry, seven Demonstration Squads have been provided with headquarters in seven different zones. These seven Squads are at present with the following Institutions :

1. The Mysore State Khadi and Village Industries Board, Bangalore (Mysore).
2. The Bombay Village Industries Board, Maharashtra Region, 361, Sadashive Peth, Poona-2.
3. The Madhya Bharat Khadi & Village Industries Board, Naipeth Ujjain (M. P.).
4. The Gram Seva Sangh, P. O. Mugkalyan, via Bagnan Railway Station, Dist. Howrah (West Bengal).
5. The Orissa State Khadi and Village Industries Board, Dina Kutir, Bhubaneshwar (Orissa).
6. The Punjab State Khadi and Village Industries Board, Chandigarh, (Punjab).
7. The Gramodaya Sangh, P. O. Bhadravati, Dist. Chanda (Bombay) Railway Station, Bhandak.

More Demonstration Squads may be available during the course of the year.

Wherever a new Co-operative Society or a Registered Institution for village pottery development has been formed, the services of the nearest Demonstration Squad can be availed of by applying to the concerned Institution. The expenses of the demonstration will be borne by the Institution, from aid received from the Commission.

V. Central Coordination Office : Express Building, 1st floor, Near Churchgate Station, Bombay-1.

Inspectors' Offices :-

Seven Inspectors' Offices have been located at the following places. They will be available for all preliminary work in that region for watching, assisting and inspecting village pottery development. The respective Inspector may be contacted for immediate advice and help :-

1. The Inspector Village Pottery Industry, C/o Office of the Zonal Director, Khadi and Village Industries Commission, 71, Mission Street, Tirupur (Madras), — Kerala and Madras States.

2. The Inspector, Village Pottery Industry, C/o. Office of the Deputy Zonal Director, Khadi and Village Industries Commission, Janata College, Dharwar (Mysore), — Mysore and Southern Bombay, excluding Vidarbha.

3. The Inspector, Village Pottery Industry, C/o Office of the Zonal Director, Khadi and Village Industries Commission, 9, New Colony, Jaipur (Rajasthan) — Rajasthan and Madhya Bharat.

4. The Inspector Village Pottery Industry, C/o Office of the Zonal Director, Khadi and V. I. Commission, 32/1, Gandhi Nagar, Meerut (Uttar Pradesh).	U.P., Punjab, Himachal Pradesh and Delhi.
5. The Inspector, Village Pottery Industry, Office of the Deputy Zonal Director, Khadi and V. I. Commission, New Dak Bungalow Road, Patna (Bihar State).	Bihar, Assam, Manipur, Tripura and West Bengal.
6. The Inspector, Village Pottery Industry, C/o Office of the Zonal Director, Khadi and V. I. Commission, Post Box No. 41, Kakinada (Andhra Pradesh).	Andhra and Orissa.
7. The Inspector, Village Pottery Industry, C/o Office of the Deputy Zonal Director, Khadi and V. I. Commission, Ujjain (Madhya Pradesh).	Madhya Pradesh, Northern Bombay and Vidarbha Districts.

Inspite of the jurisdiction of the Inspectors defined above, depending on the urgency and other factors, the services of the nearest Inspector can be availed of in special cases.

More Inspectors are expected to be appointed during this year, so that one Inspector can be located for each State.

Registered Institutions/Co-operative Societies/Statutory State Boards/Community Projects/Intensive Areas may take up village pottery development and avail of any one or more items of assistance offered by the Commission. Along with each demand the following papers are required to be sent. The original application may take time to reach the Organiser. Therefore a copy may be sent to the Inspectors of that region direct for scrutiny and recommendation of the demand to the Central Office.

1. Resolution of the Committee of the Institution for availing of the assistance with specific mention about achieving the

desired targets as prescribed by the Commission for the particular programme and authorising the office-bearer concerned to receive money on behalf of the Institution or the Society and to establish the unit within three months from the date of receipt of funds.

2. Declaration form signed by the Secretary or the Chairman of the Institution in the prescribed form (Form 'A'). This form has to be filled in by the Loanee for receiving the loan from the Commission.
3. Advance receipt in duplicate for the amount demanded (one stamped) in the prescribed form (Form 'B').
4. Printed and certified copy of the Rules and Constitution of the Institution.
5. Certified copy of the Registration Certificate.
6. Certified copy of the Balance Sheet or a copy of the audited statement of Accounts of the last financial year.
7. Recommendation of the Registrar of Cooperative Societies, if it is a Cooperative Society.
8. Recommendation of the State Khadi and Village Industries Board and/or the Director of Industries, if there is no State Board created by the State.
9. Promise in writing to submit periodical progress reports as required by the Commission.
10. A report on the utilisation of funds received in the past from the Commission and the progress of work.
11. Whether the Institution has received funds from any other source for its activities, if so, information regarding the funds received, item of development, targets achieved etc. should be furnished.
12. Name of the Bank or Treasury on which funds have to be drawn and in whose favour.

EQUIPMENT

Equipments are available at subsidised cost, as described below:

50% or the amount mentioned under the subsidy column, whichever is less, is available as on the under mentioned items of equipment :-

No.	Particulars	Full price f.o.r. destination	Subsidy
1.	Wheel attachment with two wooden strips for the base.	Rs. 60	Rs. 30
2.	New Model wheel	Rs. 120	Rs. 60
3.	Chain-driven wheel	Rs. 150	Rs. 75
4.	**Screw Press**		
	a) for country roofing and flooring tiles.	Rs. 1,200	Rs. 400 (for a and b)
	b) for pan-tiles of W. Bengal.	Rs. 800	
5.	Wooden moulds for pipes and special tiles.	Rs. 140 per complete set	Rs. 60
6.	Bhatti *shed*. (This has to be arranged as prescribed in the pamphlet. The equipments' manufacturer has nothing to do with this. This *shed* design can be chosen according to the local conditions and requirements of the potter).	Rs. 200	Rs. 100

The under mentioned Institutions and workshops are ready to supply against definite order the equipments mentioned against each;-

	Available Equipment – No.
1. The Regional Organiser, Bombay Village Industries Board, Southern Karnatak Region, Dharwar (Mysore State).	1 and 2
2. The Secretary, Gram Seva Sangh, Mugkalyan, via Bagnan, Dist. Howrah (West Bengal).	1, 2 and 4 (b)
3. The Secretary, Gandhi Seva Sadan, Post-Gandhi Seva Sadan, via Mankarai (Kerala State).	5
4. The Manager, Saranjam Karyalaya, Ganagouri Bazar, Jaipur (Rajasthan).	1, 2 and 5
5. The Hindusthani Talimi Sangh, Sevagram, Wardha (Bombay State).	1 (Special design)
6. The Gandhi Niketan Ashram, T. Kallupatti, Dist. Madurai (Madras State).	2 (Special design)
7. The Chandappa Engineering Works, Mangalore (Mysore State)	1 and 2
8. The Gorecha Engineering Works, Morvi (Saurashtra)	4 (a)
9. The Pilot Project Officer, Neyyatinkara (Kerala).	1

Each order for equipment at subsidised price must be accompanied by a subsidy receipt and Indemnity Bond, in the forms given below :-

INDEMNITY BOND

Place :

To

Date :

The Chairman,
Khadi & Village Industries Commission,
Post Box No. 482, Bombay-1.

I.. .. ..aged .. .. a grantee receiving subsidised equipments.... ....from the Khadi and Village Industries Commission hereby undertake and agree to abide by the following conditions :

"I will remain in the profession of Village Pottery Industry for a minimum period of 3 years and use the subsidised equipments myself. I also undertake and agree to refund to the Commission the amount of subsidy received by me in the event of my failure to abide by the this undertaking."

Sureties :

1. Signature :
   Name and
   address.

2 Signature :
  Name and
  address.

Signature :
Name and
address.

N. B. :- The sureties have to be either the Headmaster of the nearest Elementary School or the Chairman of the Village Panchayat, or the Village Munsif or any other local person of repute.The person standing

as surety will visit the Grantee's place at least once in six months and when called for, will report to the Commission whether the grantee remains in this profession and uses the equipments.

RECEIPT

Received with thanks from the Khadi and Village Industries Commission the sum of Rs.__________(Rupees__________________) as subsidy on the village pottery equipments ____________________ ____________________ through ____________________

Signature :

Place ;

Name and

Date :

address

TRAINING IN SPECIAL TECHNIQUES

In the Central Village Pottery Institute, training is at present imparted in the following techniques :

I. Clay Pipes Making :

Clay pipes are used with great advantage for drainage of rain water, kitchen water, etc. to a safe distance from the surroundings of houses. Village sanitation can be improved to a great extent by the use of soak-pits and by having covered gutters by using these pipes. Although these are unglazed, as no pressure is involved, they serve the purpose quite well. These pipes are strong enough and if laid underground can stand the strain of traffic. Another place of service with these pipes is the garden where water has to be led from the well to the plants without seapage on the way. These pipes are also used for leading smoke above the roof from smoke-free ovens. In fields, these pipes are used for connecting one field with the other. There are various uses according to the taste and the local needs.

II. (a) Special Tiles And Other Articles On Wooden Moulds

Skylight tiles help to brighten up houses. The ventilator tiles are useful not only for supply of fresh air but for the exhaust of the smoke from the kitchen. The ridge tiles serve well at the ridge of the roof. They are in good demand. Flooring tiles can be made and sold readily as the present state of flooring in village houses is deplorable.

(b) Roofing Tiles By Using Tile Press

Even country tiles can be pressed in a screw press to achieve shape, size and finish. Such tiles are stronger and they fit into each other more satisfactorily. In appearance, they are attractive. They fetch about double the price of the country tiles thrown on the wheel. There is a press for making pan-tiles of West Bengal. These are

inter-locking tiles similar in function to the Mangalore tiles. For using these tile presses certain minimum facilities are necessary, for example, shed, racks, pallets and bhatti. Production, employment and wages in such a unit will be attractive.

III. Wheel Work And Lacquering :

Making of special articles like Grameen Sheetak, Magan Chulas, water pots of various sizes and shapes are taught on the wheel, in addition to systematic making of the conventional pots and pans incorporating improvement in design and composition of the body. By lacquering earthern pots better finish is obtained and the pots are rendered impervious. Sales of these articles can be easily effected as they are popular.

IV. Casting And Pressing In Plaster Of Paris Moulds – Moulds Making :

Although clay moulds have been in use from that ancient past the use of Plaster of Paris for moulds making is still new to the village potters. Plaster of Paris enables making sharp moulds as it sets quickly. Plaster of Paris is made out of gipsum stones deposits of which are available in good quantity in different parts of India. Gipsum is calcined, and then it is easily powdered and sieved. This is the Plaster of Paris. Plaster moulds are becoming more and more popular and the potters will be poorer if they do not know this process.

V. Simple Glazing :

Glazed pottery can be made at temperatures slightly more than that in the village potters' bhatti. The glaze is prepared by indigenous methods with readily available ingredients like glass powder, red lead, borax and colouring oxides like manganese oxide for black and brown, cobalt oxide for blue, etc. The process is simple and the investment is not much. By this process attractive articles can be prepared and

sold at reasonably good prices. Food receptacles should not be made by using glaze having red lead in it.

This will be the first step for preparing village potters to engage themselves in more responsible and organised work in the production of stone-ware jars, chatni-dishes, cups and saucers, etc. Training in the production of high temperature glazed pottery will be imparted shortly in the Central Village Pottery Institute.

CENTRAL VILLAGE POTTERY INSTITUTE

P. O. Khanapur, Dist. Belgaum, Mysore State.

PROSPECTUS

Introduction :-

Village Pottery includes all kinds of articles made of clay that are needed primarily by the villagers.

There are more than 5 lakh potters families in India. Thousands of these families have been forced out of their trade due to lack of organisation and scientific advancement to cope with the times. Those who are still in the industry eke out a precarious existence. Earthen pots occupy a unique place in our homes from time immemorial. There is a wide field open for this industry and to make it paying, manufacture of different types of utility wares has to be introduced.

The Central Village Pottery Institute provides two courses, namely :-

(1) Pottery Supervisors.

(2) Master Potters.

The former course deals with the general organisational aspects in the manufacturing of Village Pottery which includes a good variety of articles such as :

1. **Domestic Wares :** Pots and pans, other wares both glazed and lacquered.
2. **Building Materials :** Bricks, roofing tiles of different types, flooring tiles, drain and soil pipes, garden pots.
3. **Smoke-less Ovens :** Ovens of different varieties.

The latter i. e. the Master Potters' Course is to train the professional potters in various improved techniques of the industry with emphasis on imparting the required skill and efficiency for the successful working of the Village Pottery Production Units.

I. Pottery Supervisor's Course :

Scope: Organise the Village Pottery Industry on sound economic and technical basis and supervise the working of units thus organised. He should know almost all the important and necessary aspects of the pottery techniques and normal processes of manufacture. He should be capable of advising upon the methods of working to be adopted and giving particulars of materials that are to be used for a particular job. He will prepare schemes for production units and estimates for production programmes. Thus he should be positively equipped for the successful running of the various units as envisaged by the Commission.

No. of Seats :- 15 seats (Stipendiary).

Educational Qualifications :- Minimum Intermediate.

Preference will be given to Science Graduates.

Age :- Between 18 and 35 years.

The candidate should be physically capable of doing manual work.

Sponsoring Agency :- Only those candidates will be admitted who have been sponsored by Potters' Co-operatives, Registered Institutions, State Boards, State Governments, C. P. Administration etc., and those who have obtained certificates to the effect that their services will be utilised on successful completion of their training.

Duration :- 10 months

Training :- 43 weeks - 5 days in a week.

Week days. 9.00 A. M. to 12.00 Noon, & 1.30 P. M. to 5-30 P. M. On Saturdays 8.00 A. M. to 1.00 P. M.	40 hours per week.

A. Pottery Technology	2 Hours	4 hours Theory.
B. Elementary Economics, statements preparation, elementary costing . .	2 ,,	
C. Practical job work, manufacturing practices	30 ,,	Practical 36 hours.
D. Physical testing of pottery raw materials, time study of job work	6 ,,	
E. Kiln duties - extra	12 ,,	

Field Work & Study Tour :- The aim is to promote and educate the trainees of the institute in Co-operative production and help them to overcome their shortcomings. All the trainees during their stay at the Institute shall have to do one month's field work either at production centre attached to the Institute, or any other production centre run by- co-operative societies, registered Institutions, etc. The trainees while practising production techniques will have opportunities to use better raw materials, tools and equipments and adopt improved manufacturing skills. Thus the trainees will have the opportunity to study the production Unit thoroughly.

2. Master Potter's Course

Scope: To impart knowledge and efficienty in undertaking actual production of all normal village pottery articles and in adopting new methods of production and giving particulars

of materials to be used for a particular job. The trainee will get instruction in kiln settings, firing, unloading etc., besides, preliminary knowledge of testing of clays. Thus after training he will be an asset to a production, training or a demonstration Unit.

No. of Seats :- 15 Seats (Stipendiary).

Educational Qualifications :- Primary School Leaving Certificate or upto that standard.

Age : Between 18 and 35 years.

The candidate should be physically strong and healthy to undertake hard and strenuous manual work.

Sponsoring Agency :- Preference will be given to professional, experienced and skilled potters sponsored by co-operative societies, registered institutions, State Boards, State Governments, C. P. Administration etc. However, a few seats will be available to direct candidates who are specially talented in one of the village pottery techniques.

Duration : 10 months.

Training : 43 weeks – 5 days in a week.

Week days
9.00 A. M. to 12.00 P.M. &)
1.30 P. M. to 5.00 P. M.) 40 hours.
On Saturdays) per week.
8.00 A. M. to 1.00 P. M.)

A. Pottery Technology	2 Hours	Theory
B. Elementary economics, statement preparation, elementary costing	2 ,,	4 hours
C. Practical job work, manufacturing practices.	30 ,,	Practical 36 hours

D. Physical testing of pottery raw material, time study of {ob work — 6 „ — Practical 40 hours.

E. Kiln duties- extra. — 12 „

Field Work :- I month.

The trainees shall have to undertake specific production jobs either at the production centre attached to the Institute or at Production Centres run by either Co-operative Societies, Registered Institutions, or Community Project Administration. The trainees will be given specific jobs. They will prepare work plans including the raw materials, requirements, output targets, etc.

II. GENERAL

Stipend : Rs. 40 per month per trainee.

Travelling Expenses : Travelling expenses by the shortest route at Third Class rail fare or public motor bus conveyance will be provided to each trainee from his place of residence to the Institute and after completion of training, from Institute to the place of residence. Also, incidental expences @ Rs. 2 per day of his journey. Travelling expenses will also be paid when a trainee is sent on field work.

III. Syllabus For Supervisor's And Master Potter's Course.

A. Pottery Technology :-

1. **What Is Village Pottery ?** History (Origin and development up-to-date), Classification (Terracotta, building materials and clay toys, art pottery, etc.).

2. **Raw Materials :-** Various types of clays, pakans, bhis, etc., sand, silts – Origin, formation, kinds, uses, suitability, sources, etc. Difference between terms clay, soil, earth.

3. **Selection Of Raw Materials For Manufacture:-** Clays-plasticity strength, air-shrinkage; opening materials-grain-size and shape and presence of foreign materials.

Finishing materials-grain-size and polishing properties, colour after burning, behaviour in burning, freedom from tendency to warp or prop in heating up period, case of oxidation, wide vitrifaction range, colour, warpage, tendency to swell, sinter and break.

4. **Fuels** :- Shrubs, fire wood, coal, coal cinders and other materials, selection, calorific value.

5. **Preparation Of Clays For Shaping:-** Transportation of pottery raw materials, storing, reduction of size and size separation, washing, seiving, mixing and kneading.

6. **Forming Of Clay Wares:-**(a) Throwing on potter's wheel - study of potter's wheels and other tools required for work on wheel.

   (b) Building by hand, wick or coil method.

   (c) Pressing to shape in plaster moulds, clay moulds, wooden moulds, and screw press.

   (d) Jigger jolleying - pillar and arm type.

   (e) Casting, preparation of casting slip.

7. **Drying Of Clay Wares :-** What is drying, how a clay ware dries, influence of shape and size of ware, texture of ware, humidity, atmospheric temperature and air current on drying, successful drying practices.

8. **Firing Of Clay Wares :-** Effect of heat on clay ware, water smoking, oxidation, sintering and vitrifaction period. Red and black bhatti firing, glost firing. Types of kilns or bhattis.

9. **Lacquering On Earthern Wares :-** Preparation of lac solution (varnish) and application, Polymerisation in lac bhatti.

10. **Simple Glazing :-** Glaze and colouring materials, composition, glaze application.

11. **Simple Modelling And Moulding :-** Gypsum and preparation of Plaster of Paris, moulds making.

B. Elementary Economics, Book-Keeping etc.

Economics of village industries with special reference to Village Pottery, formation of co-operative societies, time-study, book-keeping, preparation of estimates for specific job work, small production programmes, including space, built area, raw material requirements, tools and equipment, working capital.

C. Practical Job Work And Manufacturing Practices.

Wheel work from paper weights to water goblets.
Pipes and pipe fittings.

Roofing tiles – country roofing tiles, specialities such as sky and ventilators, ridge tiles – flooring tiles.

Garden pots.

Building bricks.

Art wares.

Adopting all the five major shaping methods.

D. Glazing And Glaze Application

Modelling, mould making, Glaze preparation, glaze application, fixing, painting, glaze firing.

E. Physical Testing Of Pottery Materials And Time Study Of Job Work

1. Sieve analysis and surface factor.

Physical verification of foreign materials, grain-size, shape, colour and hardness.

Plasticity, water of plasticity, dry strength, air shrinkage.

Behaviour of foreign materials in firing, porosity, fire-shrinkage, colour, warpage.

Glaze fit and lac-coat taking properties.

Evaluation of the materials for manufacturing purposes.

2. Time study of job work from syllabus.

F. Examination

a) Proficiency examination :- This examination will include the principal methods of working. The following processes must be carried out.

1. Preparation of pottery bodies including blending;
2. selection of one of the five shaping processes;
3. successful making and drying of a given job;
4. conducting kilns to bake the same;
5. preparation of lac solution (varnish) and polymerisation;
6. preparation of glazes, application and fixing the same in glost firing;
7. simple modelling and mould making – one, two or more piece-moulds.

The examination is to ascertain whether or not the examinee is proficient in the handling of the job as well the tools and

equipment required for the same, as also his proficiency in conducting the kilns. The examination is also to test whether or not the examinee has been both careful and economical in his work.

8. Time Allowed :- Only an indication of time will be given since the examination task will be a job work. However, time required to complete a given job will be given due consideration.

b) General knowledge examination : (written and oral) :-

For Supervisor's course examination will be written and oral and for Master Potters' it will be only oral.

Technical knowledge :- The trainee will be tested for knowledge of raw materials, such as original selection and treatment before use and application. It will also include knowledge of the shaping processes beginning with the preparation of clay to the finished ware, including the tools and equipment, and kilns necessary.

G. Industrial Economics

Economics of Village Industries, organisation of potters' industrial co-operative societies, their model bye-laws. Problems dealing with book-keeping and calculations dealing with costing and job estimation.

The oral examination will not only be supplementary to the written and practical tests on techniques but will give opportunity to test examinee for his general knowledge. Questions outside the syllabus may also be asked. Nevertheless, the examination will deal with mainly knowledge acquired during technical instruction.

IV. Certificates

Certificates will be issued to trainees on evaluating their work, by the marks obtained by them for :

I. Day to day work.

2. Final examination – (a) theoretical subjects.

   (b) practical work.

3. Conduct in the community life,

4. Field work during the period allotted.

Six months after completion of the training each trainee has to report to this Institute, about his activities in the development of Village Pottery Industry.

Hostel Routine And Rules

Time Table :

5.45 A. M.	Rising bell.
6.15 A. M.	Prayer.
6.30 to 7.30 A. M.	Community work.
7.30 to 8.00 A. M.	Breakfast.
8.00 to 8.30 A. M.	Spinning.
8.30 to 9.30 A. M.	Theory class.
9.30 to 11.30 A. M.	Practicals.
11.30 to 1.30 P. M.	Bath, meals and rest.
1.30 to 5.30 P. M.	Practicals.
5.30 to 7.30 P. M.	Community work and/or games.
7.30 to 8.00 P. M.	Evening Prayer.
8.00 to 8.30 P. M.	Meals.
8.30 to 9.30 P. M.	Studies.
9.45 P. M	Retiring bell.

Deposit :-

A deposit of Rs. 45 towards kitchen advance has to be remitted to the institute by each selected candidate in advance immediately or on receipt of intimation for admission.This amount will be refunded on the completion of the course deducting dues, if any, against arrears of dues, loss, breakage, etc.

Hostel :-

Free hostel accommodation is provided for each trainee. Each trainee will be supplied a cot, a durry and a blanket in the hostel for which a maintenance charge of Rs. 4 only will have to be paid by each trainee at the end of training session. Rs. 0.50 will be deducted from the stipend amount of each trainee per month as library fee. Also each trainee has to contribute to his medical expenses during his stay here.

Leave :-

No leave during the training course will be granted. Leave, if granted for special reason, will be without stipend.

All trainees should live in the hostel and take part in all the activities of the institution. No distinction of caste or creed will be made.

Smoking is not permitted in the premises of the institution. If the presence of any trainee is found to be undesirable, the trainee can be dismissed or suspended at any time without giving any reason.

Food will be vegetarian. The food bill per month will be about Rs. 30 per head.

The trainee must wear Khadi. He should bring with him the following articles :-

1) Bedding including one blanket.
2) Clothes-(Khadi).
3) Hurricane lamp - 1.
4) Charkha - 1.

CERTFICATE

To

The Ceramist,
Central Village Pottery Institute,
Khadi and Village Industries Commission,
P. O. Khanapur. (Dist. Belgaum).

I hereby undertake that in case Shri________________ ________________ is selected for training in Village Pottery Industry as MASTER POTTER/POTTERY SUPER-VISOR, he will be employed, if not on monthly salary, on piece-work or commission related to production, wages, distributed and profit earned by the Centre through his efforts by us, on his successful completion of the training in your Institute. All arrangements will be made to establish the centre before he returns.

Place :

Signature of Sponsoring authority or employer.

Date :

Official seal :

APPLICATION FORM

Khadi And Village Industries Commission
Village Pottery Industry

(To be filled in duplicate by the candidate in his own handwriting)

Application For Training In Supervisor's Course/Master Potter's Course (Strike out whichever is not applicable.)

1. Name in full (in block letters). ____________________

2. Father's name. ____________________

3. Date of birth. ____________________

4. Married or unmarried. ____________________

5. Present address for correspondence :- Village/Town ________

Post Office ________

Tele graph Office ________

Railway Station ________

District ________ State ________

6. Permanent home address :- Village/Town ________

Post Office ________

Telegraph Office ________

Railway Station ________

District ________ State ________

7. Examinations passed :-

Examinations.	Class obtained	Subjects taken	University or Institution.	Year.
(a) Academic :-				
1.				
2.				
(b) Technical:-				
1.				
2.				

8. Languages known :-	Speak.	Read	Write.
1.			
2.			
3.			
4.			

9. Are you a habitual spinner?
If so, state since when :- ____________________

10. Are you a habitual wearer of Khadi ? If so, state since when :- ____________________

11. Practical experience in Village Pottery Industry :-

Type	From	To	Monthly income or salary (if employed)
Common Village Pottery			
Building materials			
Glazed Pottery			
Any other Village Industry			

12. Other relevant experience and qualifications, if any:- ____________________

13. Games played :- ____________________

14. Any other information regarding Social Services and other activities :- ____________________

15. Signatures of two responsible persons (not your relatives) who are in a position to testify from personal knowledge as to your fitness for the proposed course of training :-

Signature

1. Name ____________________ ________

Status ____________________ ________

Address ____________________ ________

2. Name ______________________

Status ______________________

Address ______________________

16. Name of the sponsoring authority ______________________
(certificate attached)

17. Mention your Plans after ______________________
training, if any :-

____

I ______________________ hereby declare that the statements made above are true to the best of my knowledge. I shall produce the original certificates whenever asked to do so.

I shall wear certified Khadi.

I. Bond

I hereby undertake and agree to abide by all the rules and regulations governing the conduct of the Institution in which I intend to study during the period of my studies. I also hereby agree to serve if and when called upon to do so, in the Khadi and Village Industries Commission or any other Institution recognised by the Commission at least for three years after the completion of my training in the Vidyalaya/Institution. I also undertake to refund to the Khadi and Village Industries Commission all the sums expanded by them for the purpose of my above training, and all the sums pertaining to the same, in the event of my failure to abide by any of the above rules or regulations or in the event of discontinuing the studies in the middle of the course, or in the event of my failure to serve the Commission or the recognised institutions when called upon to do so as above stated. I

shall be liable to be expelled at any time during the training if in the opinion of the Commission or the training institution, I am found to be unfit or undesirable for any reason whatsoever.

Signature of the applicant
(in full)

Witness :-

Date : Date :

Place: Place:

Instructions For The Candidate

Following papers should be attached with this application :-

1. Date of birth (copy of the High School or S. S. C. certificate or horoscope).
2. Character certificate in original from a responsible person not related to the applicant.
3. Copies of the certificates, diplomas or degrees of the examinations passed.
4. Certificate from the sponsoring authority.
5. Any other certificates (copies).
6. Nobody should start for the training without receiving official intimation regarding his selection for admission.
7. All communications in this respect must be addressed to :-

The Ceramist,
Central Village Pottery Institute,
Khadi and Village Industries Commission,
P. O. Khanapur, Southern Railway,
(Dist. Belgaum), Mysore State.

INDEMNITY BOND

I ____

a candidate/student for training in the ____________________

_________________________ aged __________________ hereby undertake and agree to abide by all the rules and regulations governing the conduct of the above Vidyalaya in which I intend to study/am studying, during the period of my studies. I also hereby agree to serve, if and when called upon to do so, in the Khadi and Village Industries Commission or any other institution recognised by the Commission at least for two years after the completion of my training in the above Institution. I also undertake and agree to refund to the Government of India all the sums expended by them on my behalf for the purpose of my above training, and also all sums expended by them before and after such training and pertaining to the same, in the event of my failure to abide by any of the above rules or regulations, or in the event of my discontinuing the studies in the middle of the course, or in the event of my failure to serve the Commission or any recognised institution when called upon to do so as above stated.

Witnesses :–

1. Signature : Signature :

   Name & Address : Name & Address ;

2. Signature :

   Name & Address : Date :

PROCESSES AND TECHNIQUES

I, Hand Made Clay Pipes :-

These are unglazed porous pipes of 2" to 9" inside diameter having a wall thickness of about $\frac{1}{2}$" to $\frac{3}{4}$" and a length of 2' excluding the socket. (Note : 2" pipe is 22" in length). Pipes with larger diameter can also be made by this method.

These pipes are used in farms, ordinary drainage in moderate sizes and laid at moderate depth in the ground, and for smoke chimnies etc.

The materials used in the manufacture of these pipes are surface clays, earthy or stony aggregate consisting essentially of hydrated silicates of Alumina, plastic, when sufficiently powdered and wetted, rigid and dense, when fired at high temperature.

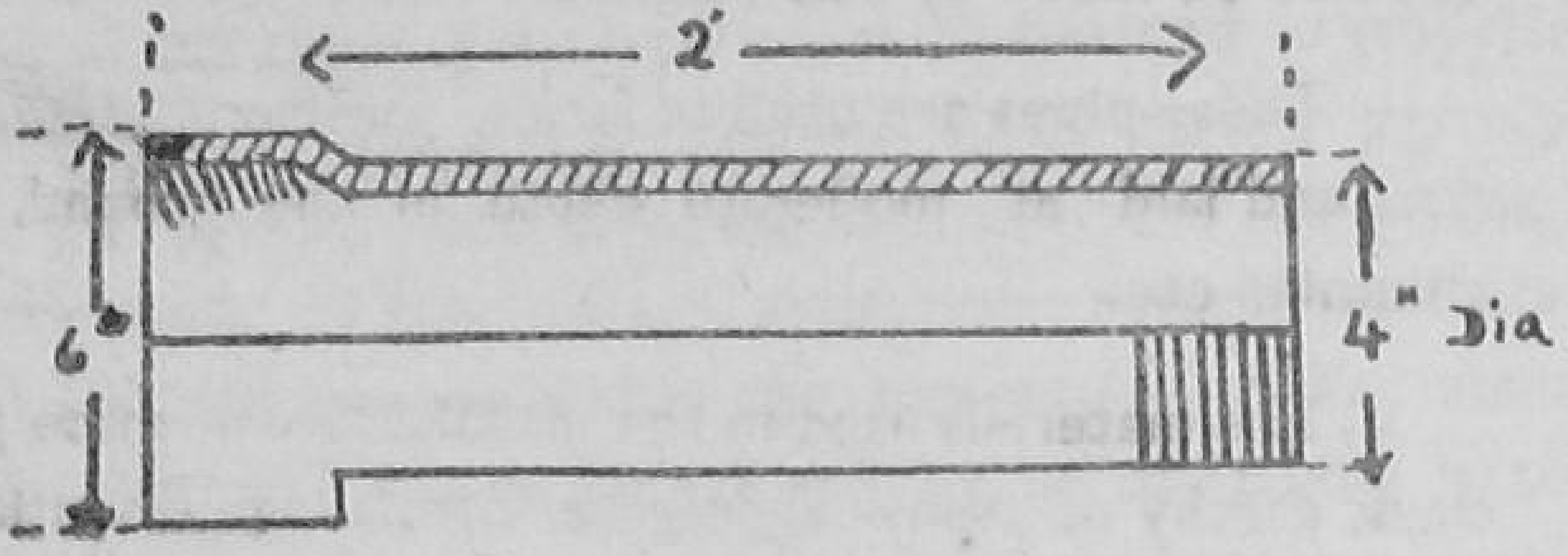
Preparation :-

Rough slabs (blanks) are prepared to the approximate circumference and length of the finished pipes by using wooden trays. This facilitates the forming operation and makes better pipes than can be made by pressing the shape from an unformed lump of clay. These slabs are allowed to dry to 'leather hard' consistency and are pressed around a core having larger diameter to allow shrinkage in the finished pipes.These pipes have a socket, at one end, to receive the unsocketed end of another pipe. The socket, is formed by revolving a template having the outer shape and diameter of the socket. The wooden core is pulled out and any joining defects inside the pipe are repaired and grooves are cut inside the socket and also outside the spigot-end surface where the pipes are joined with the cementing material. The pipe should be well-balanced or it will warp during drying and firing. The pipes are usually dried in the shade itself. Before they are completely dried, they are finished and any defects or cracks, that might have developed, are removed. The pipes are taken to the kiln and fired to a dense and porous structure.

HAND MADE CLAY PIPES

Specifications: 4" Inside Dia.
6" Socket.
24" length.
5/8" Wall.

Socket Inside
Spigot-end outside
Grooved. 2½" L.



A. Sr. No.	Raw materials & Stores.	Quantity	Rate Rs.	Per	Amount. Rs.	As.	Ps.
1.	Clay body prepared	1 Ton	6	Ton	6	–	–
2.	Lubricants						
	(a) Kerosine oil	1/8 Gall	6	4 Gallons	–	3	–
	(b) Sweet oil	1/8 Gall	24	4 Gallons	–	12	–
3.	Ash	2 Cft.	Nil		–	–	–
4.	Water carried by workers.	50 Gallons					
5.	Fire wood.	½ Ton.	20	Ton	10	–	–

B. Work done from 1 Nov. 56 to 17 nov. 1956

Work day charges for 10 days and 1 hour
@ Rs. 1-8-0 a day 2 Persons.

30	11	–
47	10	–

1. Total number of units prepared: 120 raw
100 baked (Saleable)

2. Cost of each unit: Rs. 0-7-.6

3. **Remarks**: The pipes were made by students after 3 months' training. 20% Loss. is not actual. (5% actual).

Space: Minimum space for successful pipe making should not be less than 35' x 10' 350 Sq. Ft. Excluding store for raw material plus kiln space.

Implements:- (1). 2 Baskets, 1 Spade, Water storage capacity of 20 gallons.

(2). Jute Cloth-2 yds. 6 Rags, oil tin.

(3). 4" Pipe mould set comprising of slab mould, Bow with wire, pipe core plus template, Stand box knives (bent plus straight), Wooden bat, Thread piece, Tin for finishing.

II. Special Roofing Tiles.

(A) **Ridge Tiles:**

The only style of roof which does not require ridge tiles is the perfectly simple variety composed of a single rectangular plane sloping from one wall to the opposite wall. All other roofs must have tiles specially moulded to fit the angle formed by the two rectangular planes intersecting at a straight ridge line. For an average dwelling house-roof, the number of ridge tiles runs into a 100 or more. Hence each roofing tile plant makes provision for executing this work either with the use of tile press or in a smaller factory, having no proper facilities, by hand pressing.

(B) **Sky-light Tiles:**

Similarly there is no roof so well adopted to admit light without the use of Sky-lights as the tiled roof. For some years a glass tile of

exactly the same pattern as the clay tile is being manufactured by the glass factories. In factory sheds, godowns, shops and houses where it is desired to have over-head light, all that is necessary is to insert a a sky-light tile either singly or in units along with the regular clay tiles. Thus light can be admitted at any point and in area of any dimen sion. The areas can also be changed from time to time, if necessary. There is no other way by which light can be admitted through a roof cheaply as by the use of sky-lights, the economy being chiefly due to the fact that the initial expenditure is the only cost.

(C) Ventilator Tiles:

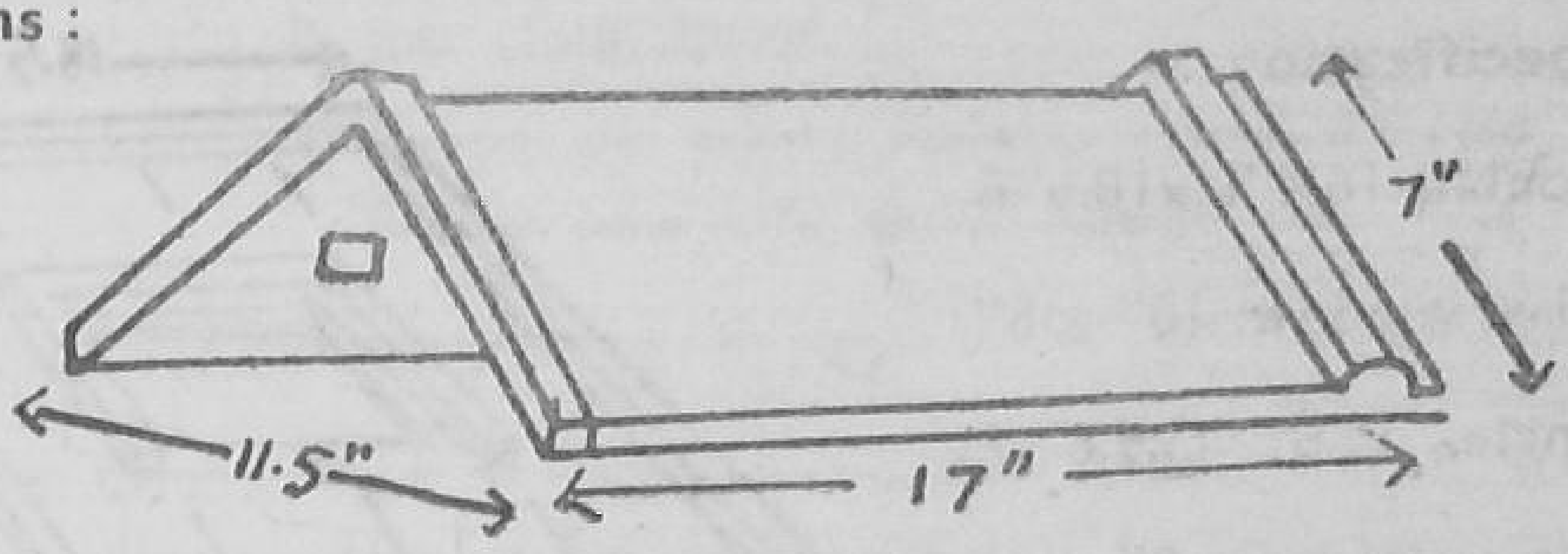
In some instances where there is much smoke or steam as in kitchen and bathrooms, it is desirable to have some means of Ventilation in the roof. This situation has been met by the roofing tile manufacture very nicely by making ventilator of the roofing tile. The making of these special tiles is hand work, i. e. they are pressed by hand in wooden moulds. The ridge tile, however, is pressed in a tile press. The demand for these tiles being limited, they cannot be economically prepared by mechanical means.

Manufacture:

Tiles are made from vitrifying clays which usually burn to bright red colour. The clay should be quite plastic and as uniform as possible because the appearance of the tiled-roof is also very important.

Rough slabs prepared from a wooden frame or a tray. These rough slabs when semi-dry are pressed into a wooden mould having the impression of the upper side of the tile. Thus the surface, away from the mould, is finished and the moulded tile is laid on a clean level surface. Next day the gap is cut in these sky-lights to receive the glass pane, or the ventilator-hood is attached in the case of ventilator tile. The ridge tile, however, is moulded by using a regular mould having the inside shape of the ventilator tile. Tounge grooves are cut in such a way that they interlock and overlap forming a water-proof surface and clay knobs are attached to the sky-light and ventilator tiles to hold the roof or on the foof.

Ridge Tiles.
Specifications :



A. Sr. No.	Raw materials & Stores	Quantity	Rate Rs.	per	Amount Rs. As. Ps.
1.	Clay prepared.	6 Cwt.	6	Ton	1- 13- 0
2.	Sundry Stores, Oil, wire.				0- 3- 0
3.	Water,	12 Gallons.			
4.	Fire wood.	3 Cwt.	20	Ton	3- 0- 0

B. Work done from 1-Nov. 56 to 14-Nov. 56.
Work day charges 52 Hrs. @ Rs. 1-8-0 8 Hrs. 9-12- 0

14-12- 0

1. Total number of units prepared: 84 Raw.
2. Cost of each unit : Rs. 0-3-6 (20 % less assumed.)
3. **Remarks :** Demonstration work.

Space :- Minimum space. 20'X10'

Implements ;- 1. Basket, 1 Spade, 1 Bucket.

2. Slab-making tray, Bow, Ridge tile mould, Tounge plus Groove templet pieces, Finishing reefer pieces, knifes etc.

SKY LIGHT TILES, SINGLE AND DOUBLE SIZE.

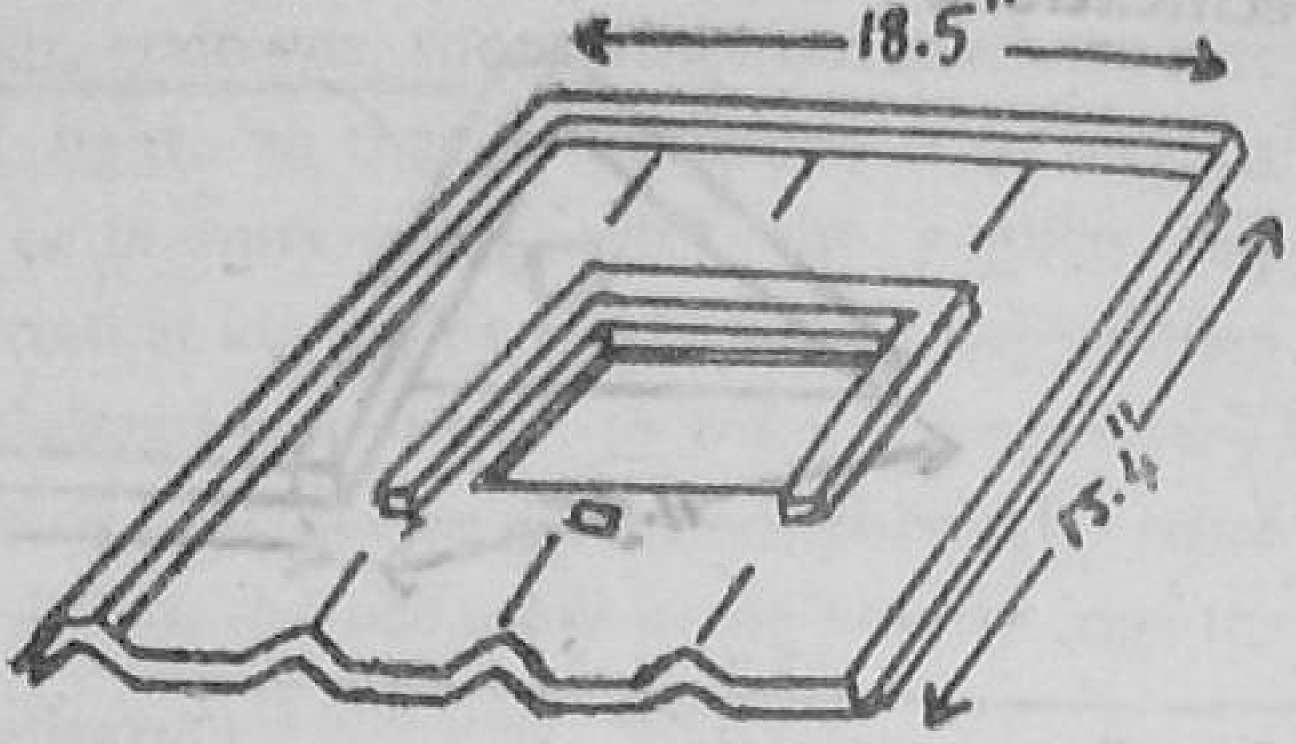
Specification :-

Double. 16.4"L.x18.5"B.

Glass window. 10" x 8"

Single. 15.6" Lx9.6" B.

Glass window. 8" x 6"



A. Sr. No.	Raw material & Stores	Quantity	Rate Rs.	per	Amount Rs.As.Ps.
1.	Clay prepared	3½ Cwt.	6	Ton	1- 0- 0
2.	Sundry Stores-Oil, Wire etc.				0- 3- 0
3.	Ash	½ Cwt.			
4.	Water	8 Gallons			
5.	Fire Wood	1¾ Cwt.	20	Ton	1-12- -

B. Work done from 1 Nov. 56 to 14 Nov. 5.
Work day charges 37 Hrs. @ Rs. 1-8-0 8 Hrs. — 6-15- 0

9-14- 0

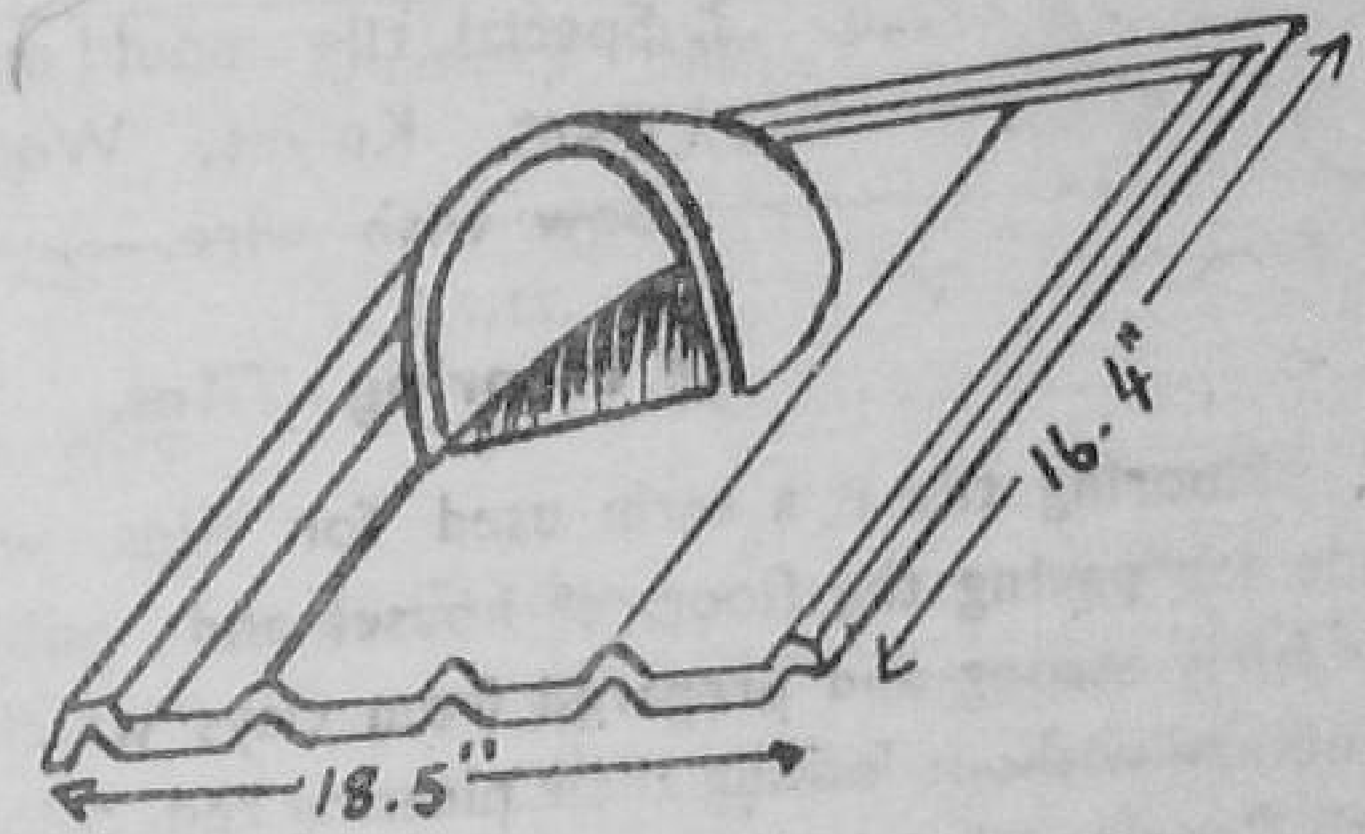
1. Total number of units prepared : 20 Nos. single — 20 units
   22 Nos. double x 3/2= 33 units.
   Total 53 Units.
   Raw.
2. Cost of each unit : 0-3-9 single unit. 0-5-9 double unit } 20% Loss assumed.
3. **Remarks :-** Demonstration work.
   One double unit is taken as 1½ single unit.

Space : Minimum space should be 20' x 10'

Implements : 1. Basket, Spade, Bucket.
2. Jute cloth, Wire.
3. Special tile mould, Knives, Wooden frame, Beater, bow with wire, Reefer etc.

VENTILATOR TILES (DOUBLE SIZE)

Specifications: Double. 16.4" X 18.5". $\frac{3}{4}$" thick.
Single. 15.6" X 9.6". $\frac{13}{24}$" thick.



A. Sr. No.	Raw materials & Stores.	Quantity	Rate Rs.	Per	Amount Rs.As.Ps.
1.	Clay body prepared	$2\frac{1}{4}$ Cwt.	6	Ton	0–10–9
2.	Sundry stores. Wire, rags, oil.				
3.	Water.	5 Gallons.			
4,	Ash.	$\frac{1}{2}$ Cwt.			
5.	Fire wood.	1 1/8 Cwt.	20	Ton	1–2 –0

B. Work done from 1 Nov. 56 to 8 Nov. 56.
Work day charges 14 Hrs. @ 1–8–0/ 8 Hours. 2–10–0

4–6 –9

1. Total number of units prepared : 11 Raw. 9 baked (Saieable)
2. Cost of each unit : Rs. 0-8-0. 20% Loss assumed.
3. **Remarks :** Demonstration work by trainee.
4. Space. Minimum space should be 20'×10'

implements :- 1. Basket-1, Spade-1, Bucket-1.
2. Jute cloth-1 yd.
3. Special tile mould and Ventilator attachment, Knives. Wooden reefer, Beater, Bow with wire.

III Flooring Tiles.

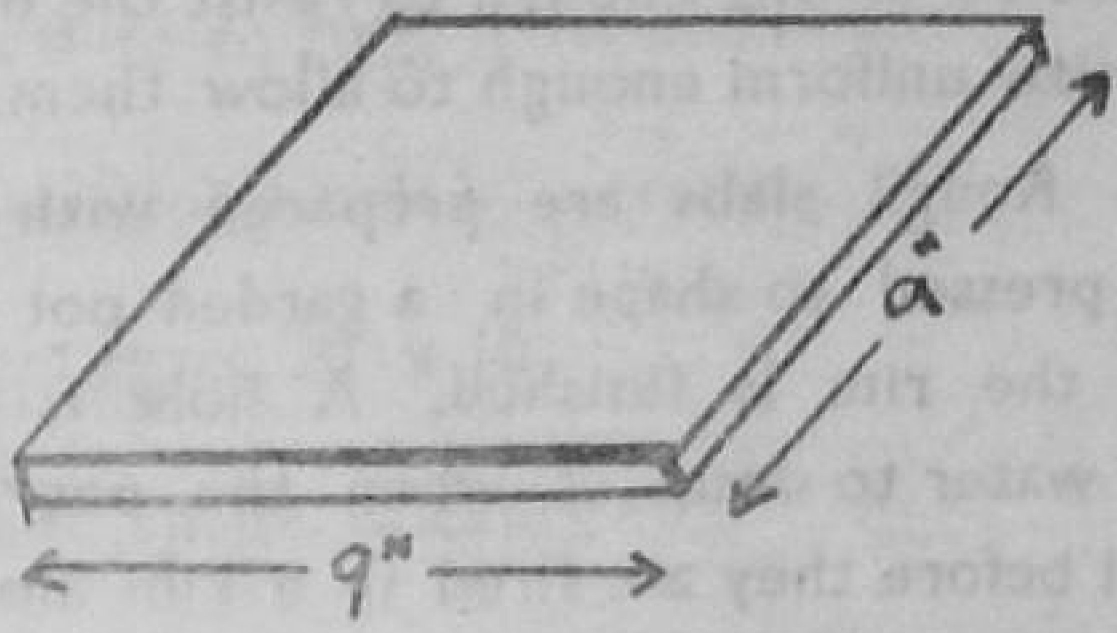
Flooring tile is a term used for tiles which are especially made for paving the floor of houses and public buildings. They are fairly strong and prepared from clays which burn to a dense structure without loosing their pleasing red colour. Flooring surface with flooring tiles laid on suitable foundation is generally regarded as a fairly durable one. In addition, the flooring tile is unaffected by weathering and is warmer than cemented or stone-paved floor.

Raw Materials And Manufacture

The foremost requirement of the flooring tiles is true fitting. They must be made from good raw materials. The principle raw materials are good quality tank clay which contain enough opening material such as fine sand and shall become dense at reasonable temperature. Clay should be quite uniform because the finished flooring tile must not contain lime pebbles, iron blisters, all of which tend to lower the strength. The flooring tile is made by pressing a shift lump of clay in a square wooden frame and excess clay is removed and the rectangular slab is finished, smoothened and four sides are trimmed when the slab becomes leather-hard. They are allowed to dry slowly and are burnt in ordinary kilns.

FLOORING TILES.

Specifications : 9"x9"x1".



A. Sr. No.	Raw materials & Stores	Quantity	Rate Rs.	Per	Amount Rs. As. Ps.
1.	Clay prepared.	11 Cwts.	6	Ton	3– 4– 9
2.	Sundary Stores, wire etc.				
3.	Water.	30 Gallons.			
4.	Fire wood.	5½ Cwts.	20	Ton	5– 8– 0

B. Work done from 1 Nov. 56 to 10 Nov. 56.

Work day charges 7 days @Rs. 1–8–0 ... 10– 8– 0

Total ... 19– 4– 9

1. Total number of units prepared : 275 Raw.
2. Cost of each Unit : for 100 units Rs. 8-13-0.
   20% loss assumed.
3. **Remarks** :– Demonstration work by trainee.
   Space :- Minimum required 3' x 10'.

Tools and Implements. 1. Baskets, Bucket, Spade etc.
2. Tile mould, Board, Knife.
Polishing reefer.

IV. Garden Pots

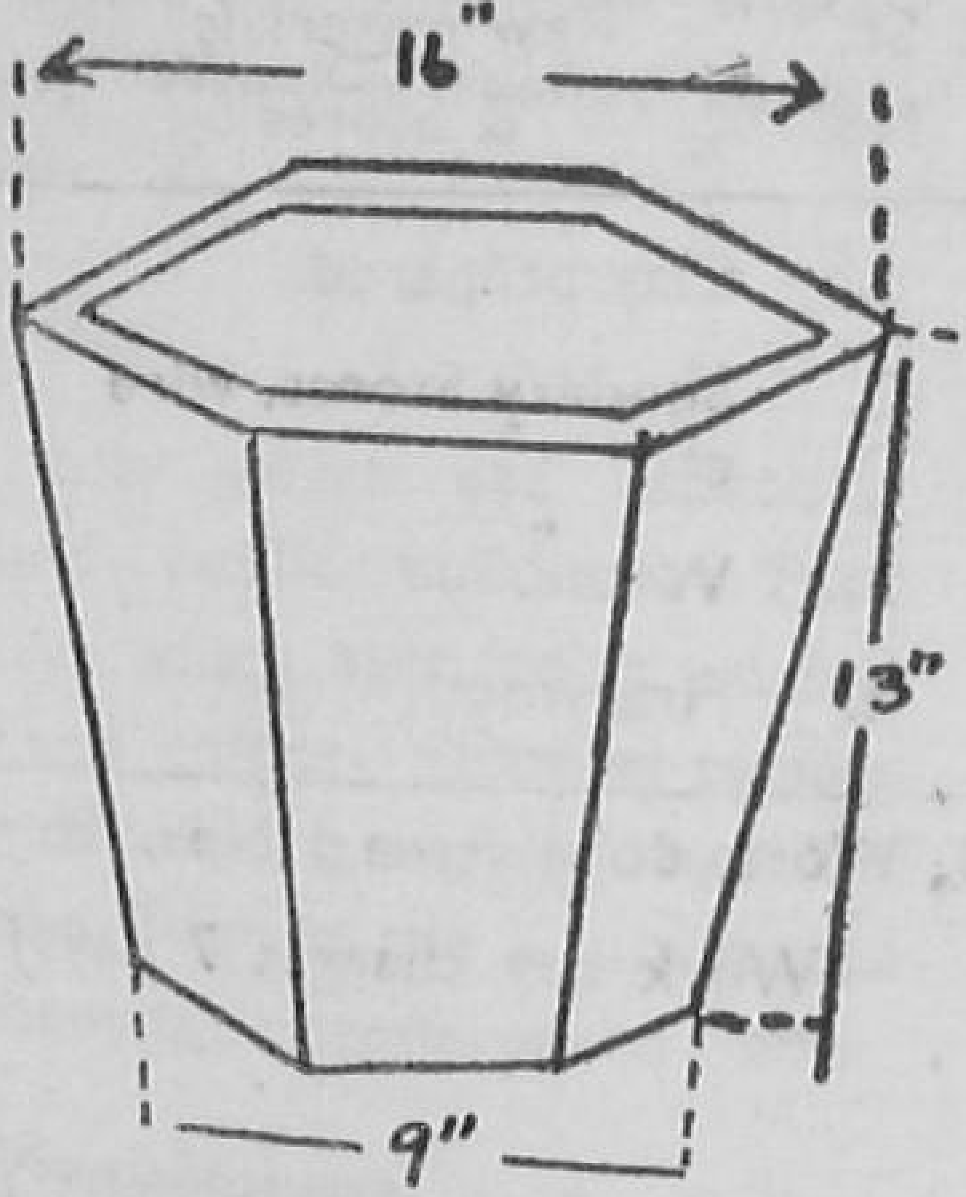
These are porous unglazed vessels of clay, used for holding plants. They must be quite porous and have a uniform pleasing

colour normally red. The other requirements are that the pots should be strong enough to resist the ordinary socks of handling and the size uniform enough to allow them to be arranged in rows.

Rough slabs are prepared with the help of the wooden trays and pressed to shape in a garden pot mould. The sides are joined and the rim is finished. A hole is made at the bottom to allow the water to drain of when the pot is in use the pots are dried well before they are fired in a kiln along with clay articles,

GARDEN POTS.

Specifications :



A. Sr. No.	Raw materials & stores	Quantity	Rate	Per	Amount Rs.	As.	Ps.
1.	Clay prepared.	3 Cwts.	6	Ton	0–	14–	3
2.	Sundry stores, wire rags.				0–	1–	0
3.	Water	10 Gallons.					
4.	Fire wood.	$\frac{1}{2}$ Cwt.	20	Ton	1–	8–	0

B. Work done from 1 Nov. 56 to 15 Nov. 56.
Work day charges 4 days @ Rs, 1–8–0

6–	0–	0
8–	7–	3

1. Total number of units prepared : 12 raw.

2. Cost of each unit : Rs. 0–13–6. 20% Loss assumed.

3. **Remarks** : Demonstration work by a trainee.

Space : Minimum space 20' x 10'

Implements : 1. Basket, Spade, Buckets etc.

2. Slab tray, Garden pot mould, Bow, Beater, Knife, Polishing piece.

V. Country Roofing Tiles

The orgin of roofing tiles is shrouded in obscurity. It can however be traced several centuries before Christ. In early man's career, doubtless he lived in caves and in natural shelters as are found in a mountainous country. But as he migrated from place to place, it would happen that natural shelters could not always be found. The impulse and suggestions for him to construct temporary caves or shelters of slabs and pieces of rock would be perfectly natural one and doubtless he required many times in various places and people in the advancement of human race. These early homes were no doubt covered with some stone roofing materials. Experience unquestionably soon taught these early home–builders the value, of sloped–roof over a flat one. This sloping roof must have, at first, been covered with bark, straw, thatch etc. stones and similar substances. However most natural stone crumble while bark, straw, thatch etc. decay. But hard burnt clay tiles are practically imperishable to the influence of decay. Thus it happens that the "Terra–Cotta roofing tiles" are often the only surviving relics of prehistoric structure.

Roofing tiles are thin slabs of fired clay used to cover the roofs of building. They are shaped in such a way that they interlock and overlap forming a water–proof surface.

Raw Materials :

Roofing tiles are mostly prepared on potters' wheels from good plastic clays which burn to a dense structure. The colour may be red or black.

(A) Throwing On Wheel

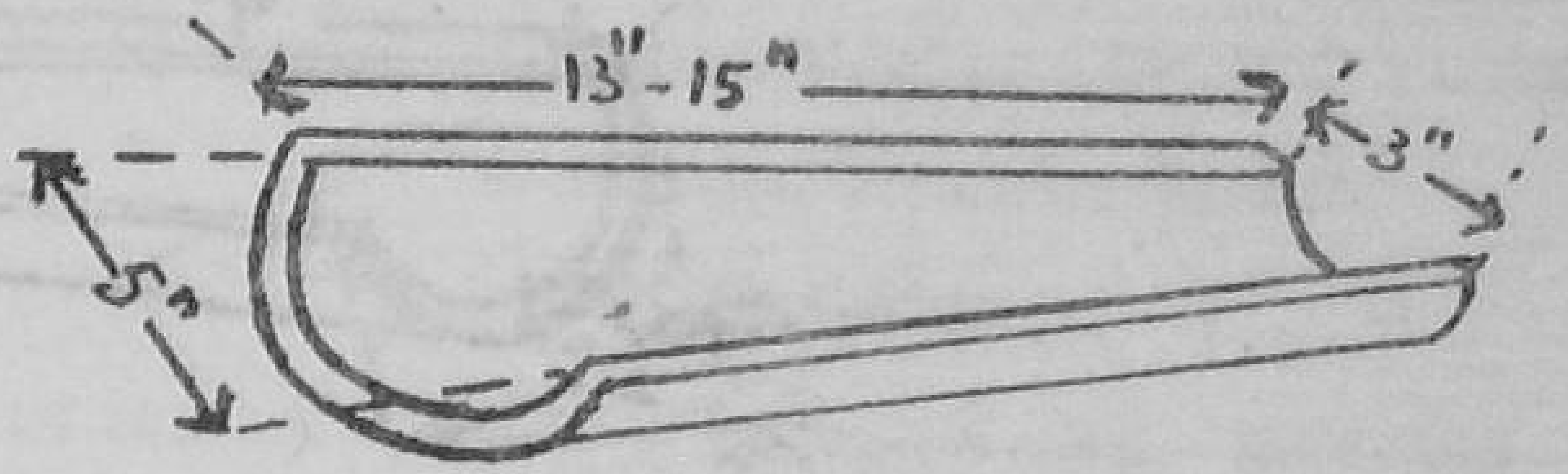
This is the most common manufacturing process and is widely practised throughout the country. A highly plastic and uniform clay is kneaded well. The shaping requires high skill. The potter takes a lump of clay and centres this on his wheel, and by manipulating the pressure, forms a hollow cylinder or of about half the required length. The cylinder together with some clay at the bottom is cut and allowed to dry a little. When a number of such cylinders are shaped the potter takes the cylinders whose sides are strong enough to hold their own weight and places them on the wheel. Then he opens the bottom of the cylinder and completes the tile with the use of excess clay. The tile is almost ready when two halves are cut out of the Cylinder. The cylinder has a wide mouth at one end; large enough to receive, the other tile of narrow mouth. Then the cylinders consisting the tiles are dried and fired in kilns.

(B) Pressing The Roofing Tile :

Non-availability of suitable plastic clays and skilled potters need not hamper the roofing tile manufacture. Ordinary clays of moderate plasticity can be pressed into a uniform tile with the use of a tile press. The initial investment alone is an item of heavy expenditure. The tiles prepared by this method are of the same quality of that of the wheel-thrown tiles. In India, there are wide variety of designs of roofing tiles meeting architectural demands. Recently however, the Cement Concrete roofing (R. C. C.) has made inroads in the tile-trade. However, a tile roof, if built correctly, will last as long as the building will stand and support it.

COUNTRY BUILDING TILES:– (Traditional Wheel Work.)

Specifications :



A. Sr. No.	Raw materials & Stores.	Quantity.	Rate Rs.	Per	Amount. Rs.As.Ps.
1.	Claybody prepared.	1 Ton	6	Ton	6– 0– 0
2.	Sundry stores, wire. rags, etc.				0– 4– 0
3.	Water	75 Gallons			
4.	Fire wood.	½ Ton.	20	Ton	10– 0– 0

B. Work done from 4 Nov. 56 to 16 Nov. 56.

Work day charges 11 days @ Rs. 1–8–0. Single.	16– 8– 0
	32–12– 0

1. Total number of units prepared : 546 Full or 1,082 half rounds raw.

2. Cost of each unit ; for 1,000 tiles Rs. 37–7–0 (20% Loss assumed).

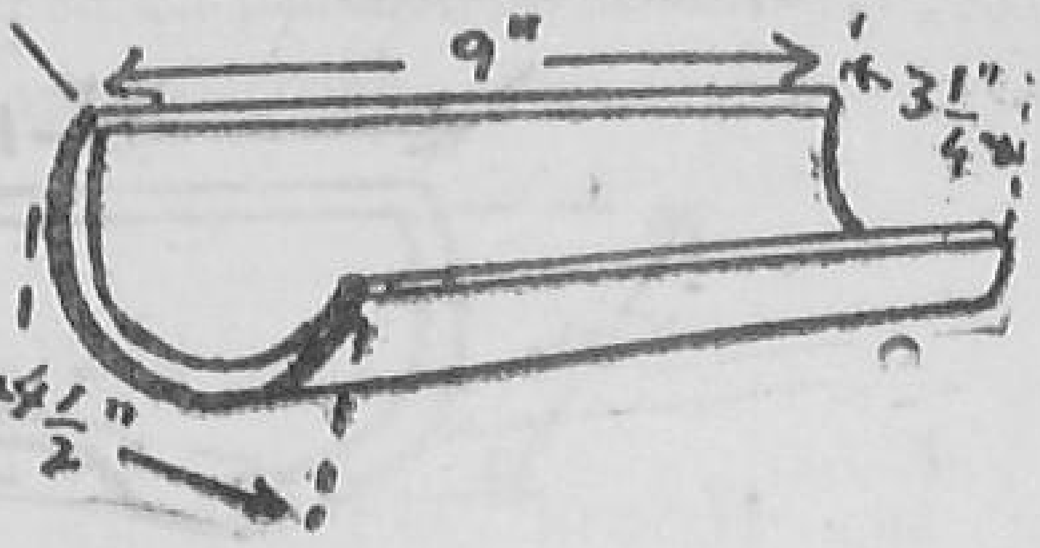
3. **Remarks** : Demonstration work.

   Space : Minimum required 30' x 15'.

   Implements : 1. Potter's wheel with rotating stick.
   2. Finishing bamboo planks, wire etc.
   3. Pots for water, Bucket, Basket, Spade etc.

Half-Round Roofing Tiles. (Pressed On Miniature Press.)

Specifications :



A. Sr. No.	Raw materials & stores	Quantity	Rate Rs.	Per	Amount Rs.As.Ps.
1.	Clay prepared.	I Ton.	6	Ton.	6– 0– 0
2.	Oil for lubricatfon.	I Gall.	3	Gall.	3– 0– 0
3.	Sundry stores, wire etc.				0– 4– 0
4.	Water.	50 Gallons.			
5.	Fire wood.	½ Ton.	20	Ton.	10– 0– 0

B. Work done from I Nov. 56 to 16 Nov. 56.

Work day charges 7 days @ Rs. 1–8–0 two persons. 21– 0– 0

40– 4– 0

1. Total number of units prepared: 1,700 units raw.

2. Cost of each unit : For 1,000 tiles. Rs. 29--8–0
(20% loss assumed.)

3. **Remarks :** Demonsration on miniature tile.

I. Space :– Minimum required 20' X 10'.

2. Implements :- 1. Tile press – Miniature.
2. Knife.
3. Wooden pallets (10" X 5") – 500 Nos.
4. Buckets, Ghamelas, Spades.

VI. Throwing

Of all the hand moulding processes used, throwing is the most interesting and is historically the most important, Throwing is not an easy operation to describe, but can be defined as a forming process consisting of shaping a mass of spinning clay between the fingers.The clay spins by placing it on a revolving wheel Known as " potter's wheel " This wheel consists of a vertical shaft where a ball-bearing is fixed. In the common potter's wheel, however, there is no ball-bearing and so the wheel although turns or revolves freely and easily it tilts and is very difficult for raw hands to handle. Around the periphery of the wheel-head, is a fly wheel which gives it momentum as the wheel is rotated by a stick inserted in a pit in the rim. Throwing is an art which is commonly beyond the skill of the beginner. There are thousand and one little tricks in the position of the arms, hands and fingers etc. Although it is impossible to describe in words it is easier to copy these actions.

A lump of clay or a ball of clay is placed on the wheel-head at the centre and the wheel is rotated by means of a stick in a pit in the rim. The ball of the clay is pressed after wetting the hands, without allowing the clay to fly off, but rotate along with the wheel. Water is used for proper lubrication and the clay is squeezed to forme Cone. For forming a cup-like hollow in the clay, the clay lump is pressed with the thumb and the sides are raised by pressing between the two hands. The cylinder becomes taller and the walls thinner. The walls will be shaped according to the shape of the vessel thrown. This process enables the potter to produce almost any form so far as the manipulation of the clay is concerned. The pot when prepared is

removed from the wheel-head after cutting it at the bottom with a wire.

Usually it is not possible to finish the work to perfection in the operation of throwing, especially the bottom of the vessel, as the clay is too soft to handle. For proper finishing the piece must be turned over to get at the bottom. The bottom is finished by cutting the superfluous clay with pointed knife or tool. The edge is carefully rounded off afterwards.

(B) Beating Pots To Shape :

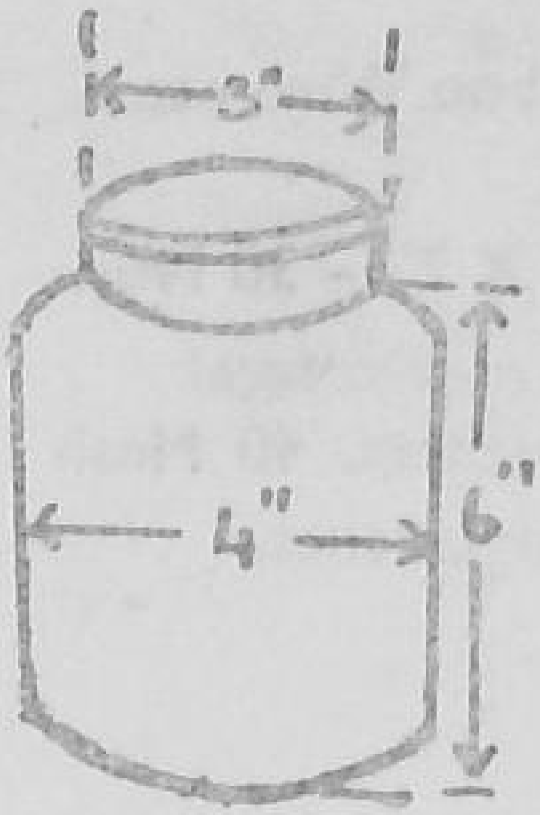
Beating pots to shape is a very fascinating art where Indian potters have surpassed the modern highly-developed pottery, in preparing pots which hold much more water per unit weight than those can be manufactured by another modern method. Whenever good and highly plastic clays are available, the Indian potter has taken the fullest advantage of this property of them.

The potter centres the highly plastic clay on his wheel and, by manipulating his finger, shapes only the neck and the rim of the pot, required to be shaped and leaves a large amount of soft clay at the bottom. The rim is cut along with the clay and is allowed to stiffen. The potter then holds a polished stone to his left hand and supports the soft, melleable clay as it spreads out when beaten with wooden bat in the right hand. The pot is rotated as it receives the beating and slowly and steadily the clay spreads out and the potter shapes by manipulating the shocks on the bottom of the pots. The walls of such vessels are very thin but dense and strong. The thin walls of these vessels render these pots useful for cooking purposes and for heating water etc. The food cooked in these vessels is heated uniformily as the clay wall is a poor conductor of heat which prevents charring of the food at the bottom of the vessels. The pots are then finished either by applying red-ochre or mucus clay or giving a good appearance to the vessels.

JARS–SIMPLE LIDS.

Specifications :

Capacity 2 lbs. Storing Jars, easy to clean. finished. suitable for lacquering.



A. Sr. No.	Raw materials & stores	Quantity	Rate Rs.	Per	Amount Rs.As.Ps.
1.	Clay body prepared (washed – kneaded)	$1\frac{1}{2}$ Cwt.	10	Ton	0–12– 0
2.	Sundry stores.				0– 2– 0
3.	Water required including washing.	10 Galls.			
4.	Fire wood.	$\frac{3}{4}$ Cwt.	20	Ton	0–12– 0

B. Work done from 1 Nov. to 16 Nov. 56

Work day charges $7\frac{1}{2}$ days @ Rs. 1–8–0	11– 4– 0
	12–14– 0

1. Total number of units prepared : 73 raw.
2. Cost of unit : Rs. 0–2–6. per jar of 2 lbs., (18% Loss assumed).

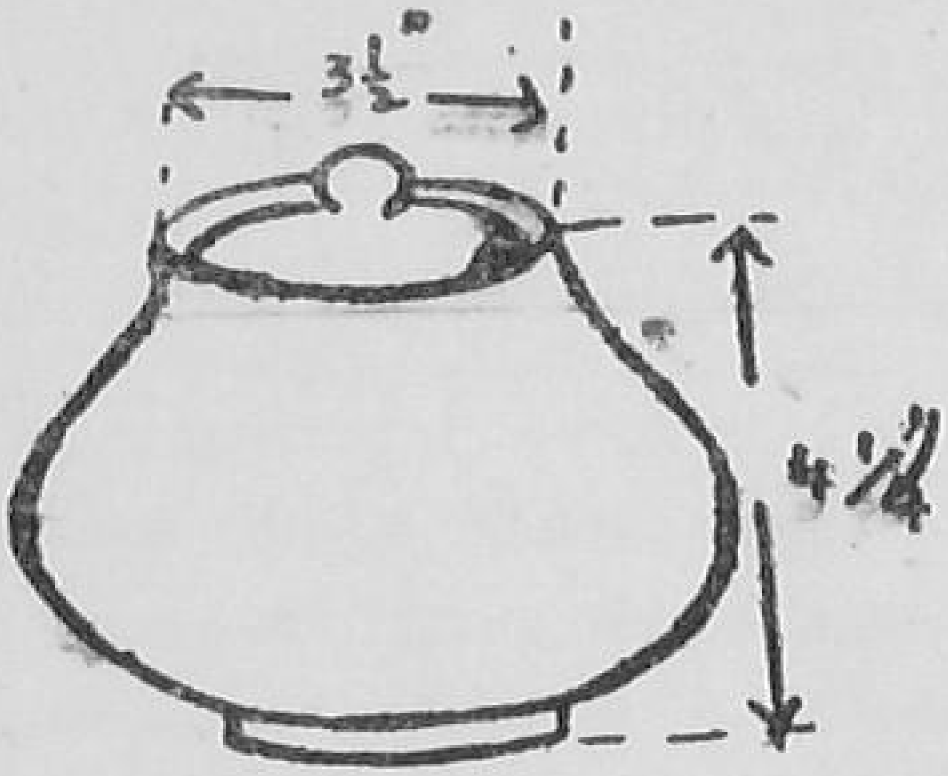
3. Remarks : Demonstration work.
Actual losses are 8%.

Space :- 15' X 15' Minimum.

Implements.
1. Potter's wheel and stick.
2. Finishing tools, Split bamboo, Wire etc. Turning tools, Blades etc.
3. Wooden planks. 4' X 8" X 2" – 30 Nos.
4. Gunney cloth. 3' X 3'.
5. Pot for water, Basket, Buckets, 40 Mesh sieve. Clay washing arrangements.

KATORI MAKING :

Specifications :



Container with lid-well fitting easy to clean-finishing suitable for lacquering process.

A. Sr. No.	Raw materials & stores.	quantity.	Rate Rs.	Per	Amount. Rs.As.Ps.
1.	Clay body (sieved and washed)	1¾ Cwt.	30/-	Ton	0–14– 0
2.	Sundry stores, rag turning tools, wire etc.				0– 2– 0
3.	Water including washing	10 Gallons.			
4.	Firewood.	1 Cwt.	20/-	Ton	1– 0– 0

B. Work one from 1 Nov. 56 to 16 Nov. 56.
Work day charges 8 days Rs. 1–8–0 day. 12– 0– 0

14– 0– 0

1. Total number of units prepared. 240 raw.
2. Cost of each unit : Rs. 0-1-3.
   20% Loss, assumed.
3. **Remarks:** Demonstration work.
   20% losses are not actual. actual will be 5%

Space :- 15' x 12' minimum space required.

Implements :-
1. Potter's wheel and stick.
2. Finishing tools – Split bamboo pieces, Wire and Blades, Polish stone etc.
3. Wooden planks 4" x 8" x ½" – 30 Nos.
4. Gunney cloth 1' x 2 '
5. Pot for water Baskets, Bucket, Small clay washing tank.

VII. Casting And Pressing

Casting is a method of forming claywares from a clay slip. The liquid-slip is poured into a plaster mould, because of the porosity of the mould, it absorbs water from the slip and builds up a layer of solid clay upon the mould's surface. The thickness of the layer will continue to increase until the whole mould becomes full of solid clay, if sufficient time is allowed. When the mould is completely filled, it is called solid casting. The casting process may be interrupted at any time by pouring out the liquid still remaning in the mould. Pots and other hollow wares are made by this method of hollow casting. After a coating of suficient thickness has been made on the surface of the mould, the mould is inverted and the excess slip is drained out. The piece is allowed to be removed. The piece, as it dries, shrinks and leaves sides of the mould. It is then removed, trimmed and finished with a fine sponge. Slip casting makes it possible for the potter to duplicate exactly if there are irregular and complicated designs. The mould . may be constructed in several pieces, so that intricate shape may easily be removed.

Considerable care must be used in preparing the casting slip since the fluidity of the slip control the rate of casting and the denseness and the taffness of the ware. It is desirable to keep the water content of the slip as low as possible. Less water content in the silp means low shrinkage on drying and less water to be absorbed by the mould. The dispersion of the clay particle is achieved by using sodium carbonate and sodium silicate in minute quantities, ranging from 0.1% to 0.5%. This electrolyte, as they are called, increased the fluidity of the clay slip and thus less water is required. The casting method is widely used in shaping pottery wares having intricate shapes and where repetition of the same piece is involved. In village pottery this process can be very advantageously used in preparing figuring toys and decorative pieces.

Black Pottery Making

Many are under the impression that different clays are used for making red and black earthen pots, but they will be surprised to learn that the same clay turns red or black, according to the atmosphere inside the kiln. Just after-complete baking is achieved, if the kiln has got free supply of air, the oxidising atmosphere brings out red pots. But if the kiln at its peak temperature is choked by shutting out fresh air, there is reducing atmosphere inside the kiln and the pots turn black. To highten the black colour and lustre on the pots, certain techniques are employed. The best of shining black pottery is produced at present only in one place in the country at Nizamabad (U. P.), 6 miles away from the railway station – Ranikasarai. The specialities in Nizamabad are :–

1. Availability of fine grained clay with the required plasticity as well as porosity. Sand in fine consistency is present in the Nizamabad clay. The clay has not got too much of organic impurity which burns away in the fire leaving the surface rough.

2. The fine cream–lime prepared red earth rich in ironoxide is applied over the articles before fire and given a good rub with a few drops of oil by a piece of rag. In preparing this earth, different parts of the country follow different methods. Some keep this wet as slip in copper pots. This method is followed in Manamadurai (Madras State). In the north, they crush and mix in it the bark of certain trees. The preparation of this earth also involves great care and patience. Generally, this is prepared of a particular red earth with grit. It is mixed into a slurry with soft water, preferably rain water. The slurry is decanted into another pot after a few minutes. Then, from the second into a third pot, after a few hours. Again into another pot after a few days. The sediment in each pot is allowed to harden and the contents of different pots are numbered as Ist, 2nd and 3rd quality. Three coats are applied on the pots, first with the inferior sediment, second with the next best and the third with the finest. To increase the lustre of the black pottery, the technique employed is as follows :–

The kiln is mostly covered by straw and ash leaving the fire-holes and the top portion. When the temperature is attained, the fire holes are ready to be closed. Just before closing them in–tact some efficient smoke–creating materials like dung cakes and oil cakes are thrown inside to create spontaneously a lot of smoke. The fire holes and all crevices are covered by ash and clay in order to choke the kiln and not to allow the smoke to escape. The whole kiln is allowed to cool down in this reducing atmosphere.

To get silvery inlaid artistic designs on the black shining surface, the technique employed is interesting. After applying the colouring earth, before baking. designs are carved on the wares by a needle. After un–loading the articles from the kiln, these designs are filled by tin amalgam (tin foils mixed with mercury) by rubbing it on wares by fingers. The tin amalgam shines silhouetted against the shining black surface of these wares.

Black Shining Pottery of Nizamabad District Azamgrah (U. P.)

This is an attractive technique specialised by the potters in Nizamabad and the wares are sold locally at cheap prices. The same articles fetch fabulous prices in distant places because of the attractive finishing and non-availability of such pottery in any other part of the country. The attraction in this type of pott ery is the brilliant black surface, the appealing shape and the slivery desings inlaid on the surface of these articles. These wares are very weak in strength and generally they are not for everyday use. They are to be considered mostly as decorative war es.

Technique : Pots can be fired either red or black by adjustment of the atmosphere in the Bhatti. This method is known to all potters. Clay used is the same for red and black wares. The pottery in the Bhatti will turn black if the kiln is chocked by convering it up completely and creating plenty of smoke inside, just before closing the Bhatti. In the reducing atmosphere the ferrogeneous materials in clay turn black and the deposit on the wares of carbon from the smoke hightens the black colour.

Shaping : Potters in Nizamabad are highly skilled. Clay in Nizamabad is exceptionally good with fine grains and with sufficient opening material not to allow warping and cracking. On the wheel many attractive shapes are achieved by throwing, when the article dries into leather – hard stage, it is again taken on the wheel upside down and the extra clay is turned out by improvised tools. Joinings are effected if any at this stage. The finishing is well done by the use of a polished stone.

Kabis : To get good finishing on conventional pottery, the wares are given a coating of " Kabis " or " Geru " (Hindi) "Paakkan" (Marathi) " Chemmanu " (Tamil & Malyalam).

The formula for 'Kabis' mixture Nizamabad is given below

1) 'Kabis' clay (Red ochre earth)	1	Maund
2) Washing Soda.	30	seers (it is called Rehat in the local language)
3) Mango–skin.	$2\frac{1}{2}$	Seers (Ama ki chhal)
4) Bamboo leaves	$\frac{1}{2}$	,, (Bans ki pati)
5) Babul leaves	$\frac{1}{4}$	,, (Babul ki pati)
6) Aduma leaves.	1	,, (Adusa ki Pati)

Washing Soda is dissolved in water and "Kabis" clay is mixed in. it. Then the rest of the articles are crushed and mixed with this into a semi–solid mass. This is made into small balls and dried in the sun. Whenever required for application. the dried "Kabis" mixture is moistened and pounded to mix the materials thoroughly. Then it is mixed with sufficient water and kept soaking overnight. It is then sieved through fine cloth. The resultant slip is used for application on green articles in the slip twice. One by one the waters are then rubbed briskly with a fine cloth using a few drops of mustard oil and this gives a highly polished surface. At this stage designs are carved on these articles with a needle and then they are loaded in the Bhatti.

Bhatti : A big pot is given a thick coating of mud mixed with cow–dung. A semi–spherical pit is dug. At the centre of the pit a small fire is started and dung–cakes spread all over the pit in two layers. The big pot is then placed in the pit and covered all round with two layers of dung cakes upto the neck of the pot and covered by a thick layer of earth and ash. The prepared articles are placed in this pot with a good packing of dung cake pieces. The mouth of the pot is closed with a lid. Gradually the fire develops and when the waves inside the pot glow red, the lid is opened and a few handfuls of dry cow dung and goat dung pieces are thrown into the pot, briskly the lid is closed and

with the earth and the ash the whole pot is covered to prevent escape of any smoke. When the pot cools down the articles are removed. They will be jet shinning black.

Silvering : Tin and lead in equal quantities are melted and cooled, and then it is beaten into thin paper like sheets. These foils are mixed with a few drops of mercury and crushed into powder between fingers. If it is sticky, mercury is in excess and more tin foils are to be added. On the other hand if it is too powdery, mercury is to be added. This powder is rubbed hard by fingers on the carved designs on the surface of the articles. Then another rubbing is given with a moistened cloth. The silvery inlaid design on the wares is thus obtained.

The Use Of Shellac For Coating Earthenware

Shellac is extensively used for protective and decorative coatings in arts and industries. Usually a solution of shellac in spirit is applied for this purpose on metal or wooden surfaces. The application of shellac composition in solid condition to wooden surfaces as in the manufacture of lacquered wooden articles is also practised in this country.

It has now been found that porous materials like domestic earthenware can be treated with shellac to give a coating which is impervious to water and proof against fermenting bacteria. The coated earthenware not only looks better but is also resistant to the action of hot water, common salt, dilute soap solution, oils, etc. It can, therefore, conveniently replace expensive utensils of stone ware, percelain, glazed earthenware, glass, etc. for storing food, oils and the like. Shellac is not injurious to health.

The process of coating is simple and does not require any expensive equipment. Also, organic solvents like spirit are not needed. The materials required are :—

(I) Good quality shellac free from adulterants such as rosin or orpiment.

(2) Liquor ammonia of specific gravity 0.88 approximately.

Shellac ($4\frac{1}{2}$ lbs.) is soaked in water (1 gallon) containing liquor ammonia (1 lb.) in a closed vessel and left overnight. Containers made of iron, copper, brass or aluminium are unsuitable for this purpose. Enamelled or tinplated vessels may be used. Next day the mixture is midly heated (up to $60^0 - 65^0$ C) and the contents stirred so that the shellac dissolves completely. The solution is then heated up to the simmering temperature which is below the boiling point, and kept simmering for 5 to 6 hours. The heating should not be done in a wide-mouthed container lest too much ammonia should escape. The solution is then allowed to cool and strained through fine-mesh cotton cloth to remove impurities. The filtered solution is made up to $2\frac{1}{4}$ gallons. This represents roughly a 20% solution of shellac in ammonia water.

The solution is dark in colour and has *faint* smell of ammonia. Preferably freshly prepared solution should be used. The solution, if necessary, may be stored in air-tight containers for 8–10 days. It is, however, important that the solution once prepared should be exhausted within this period to avoid any deterioration in quality.

Application

Before applying aqueous varnish, the surface of the earthenware should be cleaned. This can be done by rubbing with sand-paper, coir or other suitable abrasive materials. The cleaned vessels are then washed with water and allowed to dry. The final finish depends on the texture of the earthenware. Presence of alkaline earths in the vessels or in the clay used for making such vessels may cause the coating to peel off or crack. The surface to be coated should preferably be smooth and of uniform texture. The solution can be applied by dipping, brushing or spraying. The inside of earthenware which have narrow mouths may be conveniently coated by pouring in a small quantity of the

solution, squirting and pouring out the excess solution. The coated vessels are then allowed to dry in shade. Three to four coats should be applied allowing sufficient time for each coat to dry before another is applied. The coated vessels are then dried in the sun for 1–2 days.

Baking

The coated vessels have to be baked at 130°–140° C for 4 to 5 hours. This can be done in suitable ovens or over a fire. The design of a convenient oven is shown on page 5 and its details described on page 6. The vessels are ready for use after baking.

Plaster Moulds

The advantage of the plaster moulds is that they facilitate the shaping of clay in order to give a definite shape and accurate size to the final product. It is extremely difficult to manufacture articles of definite shape and accurate size, by throwing on the wheel. It is not possible to prepare articles of various of shapes only by throwing on the wheel, with the help of plaster moulds, articles of complicated shapes can be prepared even by an unskilled artisan. The demand of plaster moulds has been increasing day by day on account of the above property of the plaster mould.

Plaster moulds are prepared out of Plaster of Paris which is made by calcining gypsum. Plaster of Paris is available in tins in powdery condition. After mixing this plaster with a definite quantity of water for some time. the slip will commence setting. This set mass is dried. It is porous and when dry absorbs water, like a blotting paper, from a material which has got more water. This property has been made use of in the manufacturing of different varieties of pottery wares from a tiny article to the size of very big bath tubs.

Plaster moulds are used in two ways in the manufacture of pottery wares ! (i) by pressing the clay body in plaster moulds and removing it immediately after the clay body has taken the shape

(example-handles of cups, toys, figures etc.) (ii) The other method is by casting eg :- Tea-pot, cup, etc). For the second method the clay body is rendered into a slip form by the addition of required amount of water and diffluent. This slip of required consistency is poured into the plaster mould. The plaster mould absorbs water form the slip leaving a layer of clay body. The mould is kept full with the slip by the addition of more slip, until we get the desired thickness. For hollow casting, the slip inside the plaster mould, is taken out, by over turning the mould, after a layer of required thickness has formed in the mould. On drying, this layer of clay in the mould can be detached from the plaster mould. Thus the article of required shape and size and thickness is produced enactly as per specification. Then it is dried and baked as usual.

Glazing

The technique of glazing is more or less treated as trade secret although the very art was evolved by a potter. The present ambition of the ordinary potter is to imporve their condition by picking up the glaze technique.

Glaze is a glossy surface over a pottery article. This glossy surface is brought about by coating the "green" or the "biscuitted" article, as the case may be, with a slip made out of glass making materials which at firing to a particular temperature melt to form a glossy surface on the article.

I. Glazes can be broadly classified under two heads – (i) Raw glazes and (ii) Fritted glazes. Raw glazes are those which are prepared by mixing the glaze constituents in powdered condition whereas fritted glazes are those prepared by fritting or fusing the different components of glazes at a sufficiently. high temperature all the ingredients melt to form a glass or glaze. This molten mass is poured into water to render the whole into small lumps, which are convenient to grind to a fine powder.

Raw glazes are cheaper than the fitted ones as the latter involves an additional process of fritting which increases the cost. As far as possible, raw leadless glazes are adopted in the glaze work. But there is a limit to adopt such a glaze on account of the fact, that usually raw glazes are high melting glazes (i. e. melting at high temperatures) and the glazed surface will not be as glossy as a fritted glaze. This is because that the ingredients of the glaze, before application on the ware, are not throughly mixed to form a gloss. Another important point for the necessity of fritting is particularly Borax, which contributes to the two important properties such as increasing the gloss and at the same time reducing the melting temperature of the glaze, is soluble in water, which makes it highly difficult to prepare raw glazes.

The above classification of glazes can be further divided under two heads (i) low melting glazes - glazes which mature at a temperature less than 1,000° C. (ii) High melting glazes - glazes maturing at temperatures beyond 1000 °C.

Constituents of Glaze : Glaze is prepared out of materials which render the mixture into a gloss. The main constituents which are mixed in suitable proportion of glaze are that of a glass. They are quartz, felspar, Borax, lime, Sodas, redlead etc.

The redlead glazes mature at a lower temperature and have a very glossy surface. But, there is the danger of lead contamination to food stuffs, kept in such a ware, which is injurious to health, whereas, the Borax glazes are maturing at a slightly higher temperature but less glossy. Please note Borax compounds are soluble in water hence the necessity of fritting.

There are other glazes such as calcareous glazes because of lime in the glazy Soda glaze because of soda in the glaze.

The above glazes are transparent. To render them opaque,, some chemical compounds named as "opacifiers' such as tin oxide, are

added. The diffirent metallic oxides are made use of to impart colour to the glaze. For example cobalt oxide–blue,

Chromium oxide–green, pink

Ironoxide–green blue

Copperoxide–blue, green

Preparation, Application and Firing : The raw glazes are prepared in a slip form by mixing the different powdered ingredients of the glaze in water. This is applied on the "green" or the "biscuitted" pottery wares. After the glaze has dried the articles are fired in a kiln, preferably keeping these articles in saggers (clay containers of thick walls) to avoid volatalizing of the constituents of the glaze during the firing.

Fritted glazes are prepared by melting the glaze ingredients at a sufficiently high temperature when they are rendered into a glassy form. This is not soluble in water. This glossy mass is powdered and a, slip is prepared out of the same by the addition of a very small quantity of clay and a deffloculent to keep the heavy glazed particles in suspension. This slip of requireJ consistency is coated over the "green" or "biscuited" pottery wares. Keeping these articles in saggers, they are fixed in a kiln at a suitable temperature to get the required glossy surface on the pottery wares.

Uses : The application of glaze over the pottery ware, in addition to the glossy surface to add to the beauty of the articles will have the following properties, which have been advantageously taken into account for the production of different articles required in various spheres.

1. Resistance to porosity
2. Resistance to chemical action.
3. Resistance to conductivity of heat and electricity.

Simple Glazing

In India, the low melting glazes commonly known as Simple Glazes have been advantageously put into actual practice in Chunar, District Mirjapur (U. P.) and in Karigeri, N. Arcot District, Madras State. The high temperature glazing has been in operation in all the ceramic factories, since many years.

The Khadi and Village Industries Commission has very recently taken up the introduction of glazed pottery on decentralised basis. Some of the foreign countries, particularly China and Japan have been successful in this decentralised pottery mawfacture. This glaze activity among the potters is a long felt desire. The main principle on which the programme has been framed is that a ceramic service station, where very hard raw materials, such as quartz, felspar, etc are crushed and rendered into consistent clay body and glaze. will supply the same to the glazed pottery units, where the pottery wares of every–day–use will be produced on a decentralised method, giving full scope to expression of the high skill of Indian potters.

Sub:– Supply of Readymade Glaze For Simple Glazing

Simple glazing can be achieved in a simple way by individual potters as well as by pottery production units situated in seven remote parts of the country. Articles made of red clay are first baken in the ordinary "Bhatti" and such articles which are once fired are dipped in liquid glaze mixture to give a uniform thin coating. These are fired again in a simple "Bhatti" specially constructed for this purpose, in a temperature of 800°–950° C. The process of simple glazing is taught in the Central Village Pottery Institute and in the Regional Training Centres. This process is also demonstrated in many places by the Demonstration Squads.

Although the glaze mixture can be prepared anywhere by anybody after some experience, to start with, it will be safe

and easy to use ready mixed glaze that has been tested. For this purpose the Central Village Pottery Institute, Khanapur (District Belgaum) is prepared to arrange to supply small consignments of not less than 5 lbs. and not more than 50 lbs. at a time to any individual potter, registered institution or co-operative society, glazes at the following prices on receipt of definite order and advance :-

(1)	Transparent glaze	Rs. 0.75 nP.	Per lb.
(2)	Black-colour glaze	Rs. 1.00 ,,	,, ,,
(3)	Brown ,, ,,	Rs. 1.00 ,,	,, ,,
(4)	Blue ,, ,,	Rs. 1.00 ,;	,, ,,

(Packing and forwarding charges extra)

The above glazes mature between 800°–950° C. Along with the orders full advance to cover the cost of the glaze at the rates mentioned above has to be sent to the Superintendent (Tech.) Central Village Pottery Institute, Khanapur, (District Belgaum).

Potters' Weels In Use In India

Any one will be bewitched watching a potter working on his wheel. It is a fascinating experience. To watch the formation of clay on potters wheels into thousand-and-one shapes, according to the skill and imagination of the potter is interesting. The origin of the potters' wheel is not known, But there is no gainsaying the fact that the potters' wheel is one of the oldest scientific inventions.

There are many kinds of potters' wheels in different countries. I shall attempt here to mention a few designs of potters' wheels in use in our country. There havebeen various attempts to improve the potters' wheels. I do not intend to enter into a detailed discussion of these. The purpose of this article is a limited one. It is to tell the reader about a few traditional wheels and some of the improved types.

Traditional Potters' Wheels

The simplest wheel used by potters for generations is the wheel with heavy disc of clay mixed with fibre, at the bottom centre of which a highly polished stone cup is fixed to act as the fulcrum. A hard wooden peg is fixed into the earth with a pointed finger like top projecting above the surface of the earth. On this peg at the stone fulcrum the heavy wheel is supported. A drop of oil as lubricant between the wooden pivot and the stone-cup-fulcrum prepares the wheel for use. The wheel is about 2 maunds in weight, but being truly mounted at the centre, the pin-point support afford minimum friction. The energy imparted to the wheel by the potter with the aid of his stick is stored as momentum and is utilised by the potter at his will while shaping clay over it. As soon as this energy is exhausted; he stores further energy by rotating it afresh,

Instead of a complete clay disc, a wooden frame in the shape of a cross, with a central one foot diameter disc of wood for mounting the clay is used to make the wheel. This frame is worked at the circumference by three strips of split-bamboo tied together with a string. Plastering the rim with clay mixed with fibre gives enough weight for the wheel to gain momentum. This fly wheel lasts for years and there is no wear and tear except for redoing the fly wheel with clay every few years. Hard wood for the pivot and homogeneous finely grained hard stone for the fulcrum afford very good bearing for the wheel. There is no iron to rust and the wheel remains true. The potter holds on to the polished stone up as a precious possession. The polish is obtained by movement of the wheel for years. He will not be prepared to part with it for love or for momey.

Stone Wheel

The wooden frame is common in all parts of India except Rajasthan, Punjab, Uttar Pradesh and Bihar where good quality stone is available. In these areas the potters' wheels are all of solid stone.

In some places the wheel has a thick rim, while in other places it is only a disc of stone 2" thick and about 3' in diameter, almost of the same size as the wheels with wooden frames and clay rim. In some of these stone wheels, hard stone-fulcrums are fixed and in many cases the centre of the wheel itself is polished to act as the fulcrum. The price of the stone wheel varies from place to place depending on the availability of good stones and skilled stone-cutters. It is anything between Rs. 15 and Rs. 40. The stone wheel is durable and is handed down from father to son for generations.

Antiquated Wheels

There are some peculiar types of wheels found in Madras and Kerala States. Out of these I shall mention only two types. One has stone bearings and clay for the fly wheel. The stone bearings in the wheel are conically shaped. The upper part of the bearing, consising of an inverted cone with a flat top, which is embedded in the clay disc. The conical bottom portion fits exactly in a conically pitted stone at the bottom. A few drops of oil in the bottom conical pit acts as lubricant. This kind of a wheel is generally rotated by the help of another person who, holding the wheel by the circumference, pulls and pushes the wheel while the potter works with the clay. There is little momentum and whatever force is imparted by the helper is used up directly by the potter. There is one advantage in this wheel which is absent in the other wheels and it is the stable motion of the wheel in a single plane; but it is mechanically disadvantageous. It is irksome for the helper to move the wheel continuously by its circumference. This kind of wheel is in use in Travancore-Cochin, Coimbatore, Tirunelveli and North Malabar.

The second type of wheel has a peculiar type of bearing. It has a wooden frame, clay plastered fly wheel and a semi-spherical hard-wood projection under the wheel at the centre, which acts as the pivot. To support the wheel there is a big lump of clay semi-spherical in shape, with a pit at the top. The pit is spread with rice husk over which a piece of cloth is spread and over the

cloth dehusked rice is sprinkled. The wooden projection of the wheel rests on the sprinkled rice and the potter rotates the wheel by a stick to gain momentum for shaping pots. The dehusked rice is a crude attempt to have the effect of ball-bearings and the rice husk is expected to present a spring-like support. The cloth is expected to keep the rice husk and rice in position. This wheel is prevalent only in a place called Mudadi in North Malabar. Another strange practice here is that they rotate the wheel in clock-wise direc tion. In no other part of the country nor anywhere in the world, we have heard of any potter rotating the wheel in clock-wise direction. Everywhere the potter rotates the wheel in anti-clockwise direction.

Kick-Wheel

These are the traditional wheels in use in remote villages in India. They are very simple in construction, but one, efficient within the limited expectation of the village potter. All these suffer from one important weakness and that is they all rotate in many planes instead of in one steady plane. The spining of the wheel in one steady plane is advantageous for precision work. It requires high skill to handle this wheel efficiently. The whole weight of about 2 mds. is liable to fly out with great force from the pivot if handled carelessly, causing severe injury to persons all around. To eradicate these points many efforts have been going on in different places. In Punjab the kick wheel is popular. It has a thick wooden spindle vertically supported at the bottom in a heavy cavity. There is a heavy wooden fly wheel at the lower part of the spindle and a wooden wheel head at the top. Between the wheel head and the fly wheel the spindle is supported erect through a wooden plank fixed on the ground at floor level. The portion of the spindle under the plank with the fly-wheel is contained in a pit underground. The potter sits on the wooden plank and kicks the flywheel with his legs. Both hands are free for use on the wheel and the

rotation of the wheel is continuously possible by the use of one of his legs. This is popular in Punjab, especially among the Muslim potters who work on the wheels with great ease, potters in other part of the country, however, find it irksome. The fly wheel motion is retarded to a great extent by the friction at the collor of the wheel between the plank and the spindle.

Improved Potters' Wheels

The use of second hand ball bearings with their iron housing available from scrapped motor cars has been attempted in potters wheels differently in parts of the country. The fly wheel is made of cement concrete. One such wheel has been working satisfactorily in Maganwadi wardha. It was made by the Vivekananda Engineering Works, Madras, some years ago. The difficulty in this wheel is that it cannot be made in large numbers. If new bearings are used such wheels are bound to cost more.

The use of ball bearings or taper bearings in a potter's wheel is advantageous to the extent that the wheel rotates in a steady plane. But the friction involved in spite of the ball bearings, is much more than what is present in the pin point support of the traditional wheel where the friction is the minimum. Therefore, energy imparted will be partly spent up in overcoming the friction in the ball bearings of these improved wheels. No doubt, at the cost of some energy, the performance of the wheel has been brought to certain minimum requirements without which high class work is impossible.

Jolly Jiggers

Among the potters' wheels housing ball bearings or taper bearings or thrust bearings, I would mention a few types here.

The jolly jigger type wheel with gear arrangement used in factories is one such. It is a heavy wheel and a costly one too. Motion is imparted vertically and converted into horizontal motion by means of gear and transmitted directly to enable the potter to shape the clay. This is useful for stereotyped manufacture in organised factories.

The cost is prohibitive to enable the village potteries to avail of the same.

Bombay Wheel

There is then the rope driven wheel. Such wheels are in use in the Bombay State Demonstration Centre. A large vertical wooden wheel is rotated and, through a thick rope, the motion is transmitted to a vertical spindle having a pulley. The spindle is supported on either side of the pulley in a table with ballbearings. Here also the cost is prohibitive and no fly wheel motion is possible. It requires another person to rotate the wheel.

In the same State another wheel was made with three legged iron stand a heavy fly wheel supported by ball bearings. There is clutching and declutching contrivance in this wheel. The wheel head can be stopped at will by the use of a foot lever without hampering the fly wheel motion. This advantage is appreciable, but again the cost of the wheel goes up to more than Rs. 150 a piece.

The third and the latest wheel that has been made in Bombay State, consists of a vertical spindle with a wheel head having a fly wheel at the bottom all supported in an iron structure. Motion is imparted to a horizontal wheel by another person and this motion is transmitted to the spindle by means of a " V " belt. There is ciutching and declutching arrangement to stop the wheel head at will. This wheel is however, still more costly although there are certain advantages.

The New Model

Considering the high cost of manufacture of the above wheels with ball bearings, a special attempt was made by the Bombay State Village Industries Experimental Workshop at Poona, to bring out a wheel at as low a cost as possible, but with ball bearings. It has in cast iron a tripod stand and a wheel head housing the ball bearings. The wooden spokes firt around the wheel head and the wheel rim is to be plastered with clay in the traditional way. This is the new

model potters' wheel available at 50 per cent subsidy. The total cost is now kept at about Rs. 120 a piece. It has been working satisfactorily in the Board's Training Centres and other production centres. The cost is considered to be still high.

Wheel Attachment

Another attempt to have a suitable attachment with ball bearings that can be used under the existing potters' wheels has been found to be successful. The cost of this attachment came to less than Rs. 60 a piece and it serves the above purpose wonderfully well at a considerably lower cost. The attachment will soon be available in good numbers. It is being manufactured by the Maharashtra Seva Sangh, 361 Sadashiv, Poona-2 and by the Bombay Village Industries Southern Karnatak Region, Dharwar. Funds for manufacture and supply of these at 50 per cent subsidy are given to various Statutory State Board and recognised institutions in different parts of the country.

Chain Driven Wheel

In order to provide the more enthusiastic and better placed potters who would like to engage themselves in producing improved pottery, another wheel has been designed. It is a chain driven wheel using the cycle parts for the crank, the chain and the free wheel. The wheel head of cast iron is kept wide with heavy rim for fly wheel motion. They are ball bearings, and the crank as well as the wheel base are fixed to a wooden plank. Only a limited number of these wheels are available. The cost of one wheel is expected to be Rs. 150.

Sevagram Wheel Attachment

in the Hindustani Talimi Sangh, Sevagram, since, the last All India Village pottery Conference, Shri Devi Prasad began working on an Improved potter's wheel. This wheel has the following special advantages :

1. incorporates ball bearings or tapper bearings to enable steady motion of the wheel.

2. makes use of the generally available iron parts like angle irons, iron pipes, iron plates and screws.

3. avoids dependence on a foundry for making the housing for the ball bearing and stand for the wheel and

4. makes it possible to have an improved potters' wheel at low price.

He has succeeded to a great extent in this attempt. Two of these wheels are working in the Hindustani Talimi Sangh, Sevagram, Wardha. Certain improvements can still be made to get a better design; but, even as it is and considering the low cost of the wheel, viz: Rs. 60 F. O. R. destination at which this institution is prepared to supply the wheel, it will be a useful and cheap equipment to the potters.

Fabrication of this wheel involves only collection of two pieces of iron pipes, six pieces of angle iron and an iron plate. These can be welded and the prescribed taper bearings can be fitted with the aid of a lathe. The wooden frame and the job plate will also be supplied with the attachment. At this stage it is premature to make more detailed observations on the performance of this wheel except that it will be serviceable for the potter and is cheap.

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